This is Section G of the Part B Permit Application Permit - We are looking for the Document. This is revision #3.

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CONTINGENCY PLAN
FOR HAZARDOUS WASTE STORAGE
AT KEYSTONE

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EXECUTIVE SUMMARY

This Contingency Plan was developed in accordance with the requirements of 35 Illinois Administrative Code (IAC) 725 Subparts C and D. This Contingency Plan describes the procedures for responding to emergencies related to the storage of hazardous waste at Keystone Steel & Wire Company and contains the information necessary for outside emergency response entities.

CONTINGENCY PLAN [703.183(g), 725.150 through 725.156]

1.0 GENERAL INFORMATION

Name

Keystone Steel & Wire Company (Keystone).

Location

Keystone's address is 7000 South Adams, Peoria, Illinois 61641. The Hazardous Waste Accumulation Areas (HWAAs) and non-closed Waste Management Closure Units (WMCUs) are in several locations on the property. The HWAAs are identified in Figure 1 which shows the layout of the buildings on the property and the WMCUs are identified in Figure 2. The HWAAs are designated as:

- Building 42 - Wire Mill Accumulation Area.

The WMCUs are designated as the:

- North Dredge Pile,
- South Dredge Pile,
- North Ditch,
- Mid-Mill Ditch,
- Surface Drainage Ditch,

- South Ditch - North Half,
- South Ditch - South Half,
- Lower South Ditch, and
- 24-Hour Retention Reservoir.

Facility Description

Keystone is a manufacturer of steel rods, bars, nails, fences, and posts. Operations involve steel melting in the arc shop, billet casting, parts pickling utilizing sulfuric acid, degreasing using a water-reducible cleaner, and painting. Maintenance activities may use small amounts of solvents which may include 1,1,1-trichloroethane and tetrachloroethene (perchloroethylene). Table 1 provides information on the waste types generated, the estimated annual generation volume, the generating location, the accumulation location, the waste hazardous characteristic, the EPA waste number, and the DOT number. Table 2 lists the maximum amount of waste in storage by waste type for the HWAA and WMCUs.

Materials are managed in a manner to prevent ignition of combustible material. Containers are kept closed except when adding or removing waste. The movement of drums is minimized to prevent accidents. The storage layout of each HWAA and WMCU is shown in Figures 1, 2, and 3.

Hazardous waste is stored at the HWAAs for less than 90 days and until arrangements for off-site disposal can be made. The WMCUs are undergoing closure in accordance with a Consent Order dated July 2, 1993.

Whenever drums are double-stacked, they are banded together in groups of four. To minimize the potential for ruptures and leaks, containers are unloaded and managed within the HWAA with specially designed handling equipment such as forklifts with drum lifting attachments. Drums are stored on pallets with a minimum aisle space of 4 feet maintained between pallets to facilitate drum inspection and the movement of personnel and emergency equipment. All containers are placed so that the labels are clearly visible from the aisle.

Each HWAA is inspected weekly for signs of leaks or deterioration of containers. Any necessary repairs are immediately implemented to secure the storage area. Each WMCU is inspection daily for signs of overflow or failure.

Telephones are located throughout facility buildings and departments. A fire, explosion, or other incident can be readily reported from any location. External telephones can be used for notification of outside response agencies.

Holders of the Contingency Plan

Table 3 lists all persons and agencies that have been provided a copy of the Contingency Plan.

2.0 INSPECTION SCHEDULE

2.1 General Inspection Requirements

Keystone personnel will conduct regular inspections of emergency equipment, personnel protective equipment, security equipment and facility periphery, each hazardous waste accumulation area (HWAA), each Waste Management Closure Unit (WMCU), and all building and containment structures that are vital to prevent, detect, or respond to environmental or human health hazards. A schedule of inspections will be kept at the facility.

All equipment will be inventoried after use and will also be inventoried during the routine inspection. The Weekly Waste Accumulation Area Inspection Report Log is provided as Exhibit 1. The Monthly Emergency and Response Equipment Inspection Report Log is provided as Exhibit 2. The Daily Surface Impoundment Inspection Log is provided as Exhibit 3.

2.2 Types of Problems

Inspections are conducted routinely by Keystone personnel to ensure that no malfunction or deterioration of equipment, containment structures, or containers will lead to the release of hazardous waste into the environment or pose a hazard to facility personnel. Inspections include, but are not limited to, proper inventory, proper locations, condition, freeboard, and operation.

Each inspection log is completed during the inspection to document the status of all items inspected and noting any deficiencies found. Any deficiencies found are corrected in a timely manner and noted on the inspection log. The completed inspection log is sent to the Emergency Coordinator for review and record keeping.

2.3 Frequency of Inspections

The frequency of inspection for emergency equipment, each HWAA, each WMCU, security equipment and facility periphery, and personnel protective equipment is specified in Exhibit 4. The frequency of inspection is based upon the possible rate of deterioration of the equipment, and the probability of an environmental or human health incident if a deterioration, malfunction, or operator error goes undetected between inspections.

In addition to the routinely scheduled inspection, the HWAA will be inspected for leaks and spills after shipping hazardous waste.

2.4 Specific Process Inspection Requirements

2.4.1 Container Inspection

The containers in each HWAA will be inspected at least once a week for leaks, spills, labeling, waste segregation, waste types and quantities, and for deterioration caused by corrosion or other factors. The Weekly Waste Accumulation Area Inspection Log provided as Exhibit 1 includes an inventory of the number of containers that are being stored. Containers are inspected to ensure that they are closed and that accumulation

dates are noted on the hazardous waste labels. Aisle space is visually evaluated to ensure that containers are stored properly and not in the aisle ways.

2.4.2 Tank System Inspection

There are no waste tanks at Keystone.

2.4.3 Waste Pile Inspection

There are two (2) waste piles at Keystone. There are no inspection requirements for these waste piles. The Former Arc Dust Pile was removed during closure activities and does not require inspection.

2.4.4 Surface Impoundment Inspection

The seven (7) surface impoundments (6 ditches and the 24 hour retention reservoir) will be inspected once daily for freeboard and signs of overflows, leaks, or dike failure. The Daily Surface Impoundment Inspection Log provided as Exhibit 3 shows the minimum acceptable freeboard as 2.0 feet.

2.4.5 Incinerator Inspection

There are no waste incinerators at Keystone.

2.4.6 Landfill Inspection

No RCRA regulated landfills are operated or maintained at Keystone.

2.4.7 Land Treatment Facility Inspection

No wastes are land treated at Keystone.

3.0 EMERGENCY COORDINATORS [725.152(d), 725.155]

A list of the Emergency Coordinators, including their office phone numbers, home phone numbers, and home addresses is provided in Table 4. In the event of an emergency, personnel will notify the Emergency Coordinator or alternate immediately by calling the switchboard at extension 7911.

Keystone has a Emergency Coordinator for directing activities during a hazardous waste incident, and two alternate coordinators. At all times, there will be at least one employee (Emergency Coordinator or alternate) either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This Emergency Coordinator is thoroughly familiar with all aspects of the facility's Contingency Plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person has the authority to commit the resources needed to carry out this Contingency Plan.

The duties and responsibilities of the Emergency Coordinator are listed as follows:

a) Whenever there is an imminent or actual emergency situation, the Emergency Coordinator (or his designee when the Emergency Coordinator is on call) must immediately:

1) Activate internal facility alarms or communication systems, when applicable, to notify all facility personnel; and

2) Notify appropriate state or local agencies with designated response roles if their help is needed.

b) Whenever there is a release, fire, or explosion, the Emergency Coordinator must immediately identify the character, exact source, amount and areal extent of any released materials. He may do this by observation, review of records or manifests, and if necessary, by chemical analysis.

1) If his assessment indicates that evacuation of plant personnel and/or local off-site areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and

2) He must immediately notify either the government official designated as the on-source coordinator (Peoria County ESDA at 691-3111) for the geographical area (in the applicable Contingency Plan under 40 CFR Part 1510) or

the National Response Center (using their 24-hour toll free number (800) 424-8802. The report must include:

A) Name and telephone number of reporter;
B) Name and address of facility;
C) Time and type of incident (e.g., release, fire);
D) Name and quantity of material(s) involved, to the extent known;
E) The extent of injuries, if any; and
F) The possible hazards to human health or the environment outside the facility.

3) During an emergency, the Emergency Coordinator must take all reasonable measures necessary to ensure that fires, explosions and releases do not occur, recur or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste and removing or isolating containers.

4) If the facility stops operations in response to a fire, explosion or release, the Emergency Coordinator must monitor for leaks, pressure buildup, gas generation or ruptures in valves, pipes or other equipment, wherever this is appropriate.

5) Immediately after the emergency, the Emergency Coordinator must provide for treating, storing or disposing of recovered waste, contaminated soil or surface waste or any other material that results from a release, fire or explosion at the facility. Comment: Unless the owner or operator can demonstrate, in accordance with Section 721.103(c) or (d) that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Part 722, 723 and 725 of the Illinois regulations.

6) The Emergency Coordinator must ensure that in the affected area(s) of the facility:

   A) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

   B) All emergency equipment listed in the Contingency Plan is cleaned and fit for its intended use before operations are resumed.

7) The owner or operator must notify the Director of IEPA and other appropriate state and local authorities that the facility is in compliance with paragraph (6) of this Section before operations are resumed in the affected areas of the facility.

8) The owner operator must note in the operating record (a permanent file containing waste analyses, incident reports, and inspection results) the time, date and details of any incident that requires implementing the

Contingency Plan. Within 15 days after the incident, he must submit a written report on the incident to the Director. The report must include:

A) Name, address and telephone number of the owner or operator;
B) Name, address and telephone number of the facility;
C) Date, time and type of incident (e.g., fire, explosion);
D) Name and quantity of material(s) involved;
E) The extent of injuries, if any;
F) An assessment of actual or potential hazards to human health or the environment, there this is applicable; and
G) Estimated quantity and disposition of recovered material that resulted from the incident.

4.0 IMPLEMENTATION [725.152(a), 725.156(d)]

This Contingency Plan will be implemented if an incident occurs that might threaten human health or the environment, i.e., a fire, explosion or other sudden or nonsudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water. The following potential emergencies at the HWAAs would call for the implementation of this Contingency Plan:

- Fire or an explosion that could not be immediately contained or extinguished using available fire extinguishers;
- Contaminated runoff from fire suppression;
- Spill or leak resulting in a release or potential release of hazardous waste outside the secured containment storage areas that could not be immediately contained and cleaned up;
- Spill or release that is contained, but could contaminate the air;
- Spill or release that threatens the integrity of storage containers or other facility equipment or structures; and
- Formation and release of toxic air emissions from fires.

The following potential emergencies at the WMCUs would call for the implementation of this Contingency Plan:

- Spill or release from the overflowing of a Ditch, and
- Spill or release from the failure of a dike wall along a Ditch.

Implementation is accomplished by following the procedures outlined in Section 5.

5.0 EMERGENCY RESPONSE PROCEDURES

5.1 Notification [725.156(a)]

Hazardous waste facility personnel observing an imminent or actual emergency that cannot be readily controlled with equipment at hand must contact the Emergency Coordinator as outlined in Section 5.4. The emergency telephone number is 7911 and is posted on each telephone. If an emergency situation is observed by any Keystone employee or subcontractor, reporting the incident via extension 7911 is the standard operating procedure. A list of Emergency Notification numbers kept by the Emergency Coordinator is provided in Table 5. If the primary Emergency Coordinator is unavailable, the alternate will be called. All employees must evacuate the affected area immediately and await instructions from the Emergency Coordinator. Specific containment and control procedures (as identified in the following sections) will be implemented immediately.

If a release occurs that would threaten human health or the environment outside the facility (property), the Emergency Coordinator will call the appropriate agencies listed in Table 6 as soon as the situation permits.

The Emergency Coordinator will relay the following information to the agencies:

- Name and telephone number of the reporter,

- Name and address of this facility,

- Time and type of incident,

- Identification and quantity of materials involved,

- The extent of injuries, and

- The possible hazards to the environment and human health outside the facility (property).

All spills or releases to the environment of hazardous chemicals and hazardous wastes in excess of EPA reportable quantities (RQs) must be reported to the National Response Center. In addition, the Illinois Emergency Management Agency (IEMA) must also be notified at (800) 782-7860 or (217) 782-4268.

5.2 Identification of Hazardous Materials [725.156(b)]

Whenever there is a release, fire, or explosion for which this Contingency Plan must be implemented, the Emergency Coordinator will immediately identify the character, source, amount, and extent of any released materials. The Emergency Coordinator is familiar with the HWAAs and the WMCUs and the wastes handled there. In addition, containers are labeled to facilitate the identification of released materials. The Emergency Coordinator will also question HWAA and WMCU personnel, review operating records, and, if necessary, conduct a chemical analysis to identify the hazardous materials(s) involved. The Emergency Coordinator will take all necessary measures to contain the hazard within the facility (HWAA or WMCU) and to prevent its spread.

5.3 Assessment [725.156(c) and (d)]

The Emergency Coordinator will assess both direct and indirect possible hazards to human health or the environment that may result from the release of the identified material or from fire or explosion. The Emergency Coordinator will use the DOT publication "Emergency Response Guidebook, " DOT P5800.5 and the most recent hazardous waste inventory in making all assessments and decisions. A copy of the applicable sections of this publication is provided in Appendix A.

It is estimated that the Emergency Coordinator will arrive at the release site within 5 minutes if he is at Keystone and within 30 minutes if he is not, and he will make all assessments and decisions within 5 minutes after arrival. The assessment will consider the effects of: (1) any gases that may be generated, (2) any chemical or physical reactions on equipment or structures in the HWAAs and WMCUs, (3) the effects of weather conditions, and (4) hazardous surface runoff from water or chemical agents used to control a fire. Hazardous surface water run-off from fire fighting must be controlled to prevent ground water contamination. The properties of the hazardous waste in storage are summarized in Table 7 and Material Safety Data Sheets are contained in Appendix B. Table 8 presents a summary of published exposure limits for these compounds.

Table 9 presents the emergency evacuation scenarios for on-site areas. However, should further assessment indicate that evacuation of other areas may be advisable, the Emergency Coordinator will immediately notify the appropriate authorities listed in Table 6. The Emergency Coordinator will be available to help appropriate officials decide what areas should be evacuated. The National Response Center and the IEMA

response unit will also be notified as described in Section 5.1 if the emergency could threaten human health and the environment outside the facility (property).

5.4 Control Procedures [725.152(a)]

5.4.1 Fire or Explosion

In the event of a fire or explosion, employees should determine the extent of the fire or damage and employ the following procedures:

If the fire is small and not immediate danger to human life/safety or surrounding facilities exists then:

1) Fight the fire and extinguish with the proper equipment.
   a. Extinguisher
   b. Water hose - except near molten metal or flammable liquids
   c. Near molten metal or flammable liquids, use sand or dirt to smother the fire.

2) Remove all combustibles, chemicals, or threats of explosion from the area.

3) Summon Maintenance or turn off any utilities (i.e., gas or electrical appliances or machinery) that may threaten the fire.

4) Notify the Department Shift Supervisor and he in turn should call the switchboard (7911) to notify the Emergency Coordinator that a fire exists, and the extent of same.

5) After the fire is extinguished, thoroughly examine the area and the remains of the fire to determine the cause and prevent re-ignition.

6) If in doubt contact the Emergency Coordinator by calling the switchboard (7911).

Large Fire

If the fire is large and control is difficult or doubtful then - immediately:

1) Sound the alarm or call the switchboard (7911) to call the Fire Department and the Emergency Coordinator.

2) Evacuate the area and report to the Shift Supervisor. After the supervisor has accounted for all employees, proceed to the Organizational Point (rendezvous location).

3) Call Maintenance to help turn off utilities that may threaten the area.

4) Remove nearby chemicals and combustibles if possible.

5) Secure the area until fire officials arrive.

If in doubt or the explosion is serious and/or a fire is wildly out of control!

1) Sound the alarm and call the switchboard (7911) to call the Fire Department and the Emergency Coordinator.

2) Evacuate the building and get out. Do not attempt to fight a fire that is out of control. Report to the Shift Supervisor. After the supervisor has accounted for all employees, proceed to the Organizational Point.

Do not re-enter the area until a fire official or the Emergency Coordinator pronounces the area is safe and clear.

If chemicals and/or wastes are involved or affected in a fire or explosion, the Emergency Coordinator will notify the proper response agencies, as the situation and law dictates.

5.4.2 Release

In the event of hazardous materials or waste spills, employees should employ the following procedures:

Acid or Caustic Spill

1) Contain spill and stop leak. Prevent contact with incompatible materials.

2) Call the switchboard (7911) to call the Emergency Coordinator.

3) Neutralize with chemicals, and/or flush with water.

4) Collect in containers or respond as directed by the Department Supervisor or Emergency Coordinator.

Oil or Oil Sludge Spill

1) Prevent release to surface waters (streams, ditches, or storm sewers) and to floor drains and sanitary sewers.

2) Call the switchboard (7911) to call the Emergency Coordinator.

3) For ground surfaces, remove oil-contaminated soil and place in containers for disposal.

4) For paved surfaces, use absorbent to collect spilled material; containerize for disposal; and use commercial pavement

cleaning products for residual cleanup as directed by the Department Supervisor or Emergency Coordinator.

Waste Drum Spill (Hazardous)

1) If flammable, remove ignition sources.

2) Prevent release to floor drains or surface waters.

3) Call the switchboard (7911) to call the Emergency Coordinator.

4) Collect spilled material with absorbent and place in containers.

5) Remove waste contaminated soil and/or decontaminate the area as directed by the Emergency Coordinator.

Waste Drum Spill (Nonhazardous)

1) Prevent release to floor drains or surface wastes.

2) Call the switchboard (7911) to call the Emergency Coordinator.

3) Collect spilled material and place in containers

4) Remove contaminated soil and/or decontaminate area as directed by the Department Supervisor or the Emergency Coordinator.

Other Materials

Manage as indicated in the Material Safety Data Sheet (MSDS) and as directed by the Department Supervisor or Emergency Coordinator.

5.4.3 General Procedures

In any emergency, the Emergency Coordinator will use one or more of the following measures to ensure maximum protection of the safety and health of employees and nearby residents:

- Close on-site roads
- Shut off utilities to the affected area.
- Ensure the use of appropriate personnel protective equipment by all response personnel.
- Dismiss all nonessential personnel, and tend to any injured personnel immediately (i.e., use First Aid, call for ambulance, and/or transport to nearest health facility).

- Advise local authorities on evacuating sections of surrounding property beyond the Keystone site boundaries, if it becomes necessary.

- Limit access to the area using ropes and/or security personnel, if necessary.

- Provide ventilation to the area if indicated by the presence of vapor-emitting materials, such as acids and volatile compounds.

- Remove materials released and dispose according to applicable regulations. Place leaking or potentially leaking drums and containers into recovery drums that are properly labeled.

- Wash the spill area with water and appropriate surfactants after the area has been cleared. The Emergency Coordinator will then determine if the area is safe to return to normal use.

- Decontaminate and thoroughly clean all safety and emergency equipment before it is placed back into storage. Used spill response material and other materials that cannot be decontaminated will be appropriately disposed of and replaced.

5.5 Prevention of Recurrence or Spread of Fires, Explosions, or Releases [725.156(e)]

During an emergency, the Emergency Coordinator will take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste in the area. Some actions that may be employed include:

- Use pumps and clean empty drums to collect and contain the released waste as soon as possible,
- Use portable pumps to transfer accumulated runoff into available drums,
- Use absorbent material to erect temporary dams in the path of the flow of released materials, and
- Spread suitable neutralizing agents on contained acid spills.

5.6 Storage and Treatment of Released Material [725.156(g)]

Following the containment and control of the emergency, the Emergency Coordinator will provide for the collection and on-site storage of the wastes and contaminated soil or other materials, as appropriate, before operations are resumed. The subsequent treatment, storage, or disposal of recovered wastes and contaminated materials will be conducted in accordance with applicable regulations governing the management of these materials. The Emergency Coordinator will determine the regulatory status of the

released substances and associated spill clean-up materials. If the released materials is either a listed hazardous waste or has hazardous waste characteristics, the material will be handled and disposed of as appropriate. In addition, any clean-up materials with hazardous waste characteristics or resulting from a clean-up of listed wastes, and any other contaminated materials must be managed as hazardous wastes.

5.7 Incompatible Wastes [725.156(h)(1)]

No incompatible wastes are stored in any of the HWAAs or WMCUs.

5.8 Post-Emergency Equipment Maintenance [725.156(h)(2)]

All personnel protective and emergency equipment will be cleaned and inspected for reuse, or disposed of and replaced. Any equipment that is cleaned for reuse will be tested to ensure proper working order.

5.9 Container Spills and Leakage [725.152, 725.271]

The procedures to be used when responding to container spills or leaks are described in Section 5.4 and 5.6. The removal of spilled waste and repair or replacement of the containers will be performed as soon as it is safe for response personnel to enter the area and the spilled waste is contained. If a container holding hazardous waste is not in good condition or it begins to leak, the hazardous waste from this container will be transferred to a container in good condition. Also, entire leaking drums or other leaking containers may be placed within larger recovery drums.

5.10 Tank System Spills and Leakage

There are no waste tanks at Keystone.

5.11 Waste Pile Spills and Leakage

There are two waste piles at Keystone located near Wire Mill Pump House #1 containing K062 sludge identified as:

- the North Dredge Pile, and
- the South Dredge Pile.

5.12 Surface Impoundment Spills and Leakage

There are seven surface impoundments (Ditches) at Keystone identified as:

- the North Ditch,
- the Mid-Mill Ditch,
- the Surface Drainage Ditch,
- the South Ditch - North Half,
- the South Ditch - South Half,

- the Lower South Ditch, and
- the 24-Hour Retention Reservoir.

5.13 Incinerator Spills and Leakage

There are no incinerators at Keystone.

5.14 Landfill Leakage

There are no RCRA regulated landfills at Keystone.

6.0 EMERGENCY EQUIPMENT [725.152(e)]

The number, type, and description of safety and emergency equipment and supplies maintained at the HWAAs is provided in Appendix C, and the location is shown in Figure 3.

7.0 COORDINATION AGREEMENT REQUIREMENTS [725.137, 725.152(c) 725.153]

In addition to on-site Contingency Plan holders, copies of this plan have also been sent to the organizations listed in Table 3. When this Contingency Plan is modified or updated, these agencies will receive copies of the revised plan.

The Bartonville Fire Department is the primary emergency responder [(309) 697-2323].

Keystone has an emergency medical care agreement with the St. Francis Medical Center hospital [(309) 655-3701].

In the event of an emergency, police assistance will be obtained from the Bartonville Police Department [(309) 697-2323].

Documentation of these coordination agreements is in Appendix D.

Keystone will offer to review all components of the Contingency Plan to local emergency response entities at least once every twelve months. This review will be offered to representatives from the area fire departments, hospitals, police departments and ambulance services listed in this Contingency Plan. The review will be given at Keystone by the Emergency Coordinator or alternate and will take place on the last Wednesday in June of each year.

8.0 EVACUATION PLAN [725.152(f)]

Instructions from the Department Shift Supervisor will be used to signal personnel to evacuate the area. As discussed in Section 5.1, all employees have been instructed to automatically evacuate the area immediately if the emergency cannot be readily controlled. It is the responsibility of the supervisor to notify his/her employees to evacuate. Evacuation routes are identified on Figures 1 and 3 and the rendezvous locations are shown in Figure 1. Employees are to proceed to the nearest exit in the event of an emergency unless directed to an alternate exit.

HWAA personnel will assist any visitors out of the building, and access to the affected area will be restricted. No one will remain in or re-enter the facility (HWAAs) unless authorized by the Emergency Coordinator. The Emergency Coordinator will have supervisors prepare a list of employees present in the rendezvous area and those individuals who are missing. No attempt will be made to locate persons not accounted for, unless it can be done without endangering others and the search has been directed by the Emergency Coordinator. Also, further evacuation of the area surrounding the facility (HWAAs) will be considered and initiated if appropriate based upon the magnitude and type of emergency as presented in Table 9.

9.0 REQUIRED REPORTS [725.156(i) AND (j)]

Keystone will notify the IEPA Division of Land Pollution Control Compliance Section and Field operations Section and the IEMA when the clean-up procedures have been completed, and all emergency equipment has been cleaned or replaced and is fit for its intended use.

Keystone will note the time, date, and details of any incident that requires implementation of this Contingency Plan and will submit a written report of the incident to the IEPA Division of Land Pollution Control Compliance Section within 15 days after the incident. The report shall include the following:

- Name and telephone number of the Emergency Coordinator;
- Keystone's address and the location of the HWAA or WMCU;
- Date, time, and type of incident;
- Name and quantity of materials involved;
- Extent of injuries, if any;
- Possible hazards to human health and the environment outside of the facility (property); and

- Estimated quantity and disposition of recovered materials that resulted from the incident.

The Emergency Coordinator will ensure that this Contingency Plan is updated whenever there are changes or modifications to the storage facility (HWAAs) or to the available resources. Copies of each revision will be sent to all holders of this Plan.

TABLES

TABLE 1

WASTE INFORMATION

Waste	Estimated Annual Generation Volume	Generating Location	Accumulation Location Building No.	Hazardous Characteristic	EPA Waste Number	DOT Hazard Class or Shipping Name	DOT Number
Waste paint	2100 g	Fence Dept/Wire Mill	42	Ignitable	D001	Flammable liquid	NA 1263
Waste Naphtha (Die cleaning)	300 g	Die shop/Mid Mill, Wire Mill	42	Ignitable	D001	Combustible liquid	UN 1255
Acid Sludge	NS	Wire Mill/Mid Mill	Ditches and Dredge Piles	Toxicity	K062	Corrosive material	NS
Waste flammable liquid	100 g	Drawing room/Mid mill, wire mill	42	Ignitable	D001	Waste flammable liquid, N.O.S.	UN 1993
Spent 1,1,1 trichloroethane	200 g	Misc. Maintance Shops	42	Listed	F001/F002	ORM - A	UN 2831
Spent perchloroethylene	200 g	Misc. Maintance Shops	42	Listed	F001/F002	ORM - A	UN 1897

Key:

g = gallons.
t = tons
NS = not shipped off-site.

TABLE 2

WASTE STORAGE VOLUME

Waste	EPA Waste Number	Accumulation Location	Maximum Storage Volume	Typical Storage Volume
Waste paint	D001	Bldg. 42	8d	4d
Waste Naphtha (Die cleaning)	D001	Bldg. 42	10d	6-8d
Acid Sludge	K062	Ditches and Dredge Piles	—	100,000y
Waste flammable liquid	D001	Bldg. 42	6d	2d
Spent 1,1,1 trichloroethane	F001/F002	Bldg. 42	4d	2d
Spent perchloroethylene	F001/F002	Bldg. 42	4d	2d

Key:

d = 55-gallon drums
g = gallons
t = tons
y = cubic yds

TABLE 3

HOLDERS OF CONTINGENCY PLAN

Emergency Coordinator

First and second alternates

Bartonville Fire Department

St. Francis Medical Center

Bartonville Police Department

Advance Medical Transport

Peoria Emergency Services & Disaster Agency (ESDA)

Peoria County ESDA

PDC Response

Illinois Emergency Management Agency (IEMA)

Illinois State Police

TABLE 4

EMERGENCY COORDINATORS

Name and Position	Home Address	Office Phone Nos.	Home Phone No.
Primary - Non-responsive Manager Energy & Environmental Engineering	Non-responsive	(309) 697-7552	Non-responsive
First Alternate - Non-responsive Manager Plant Protection	Non-responsive		Non-responsive
		-7551	Non-responsive

TABLE 5

EMERGENCY NOTIFICATION TELEPHONE NUMBERS KEPT BY EMERGENCY COORDINATOR

Name	Telephone Number
Bartonville Fire Department	(309) 697-2323
Bartonville Police Department	(309) 697-2323
St. Francis Medical Center	(309) 655-3701
Advance Medical Transport	(309) 693-6120
Illinois State Police	(309) 676-2116
Peoria Emergency Services & Disaster Agency (ESDA)	(309) 686-3521
Peoria County ESDA	(309) 691-3111
National Response Center	(800) 424-8802
Illinois EMA	(800) 782-7860
Pierce Waste Oil (Springfield)	(217) 528-4271
Petro-Chem (St. Louis)	(314) 521-3600
PDC Response (Peoria)	(309) 674-4238
Environmental Emergency Service Division of Riedel International (Chesterfield, MO)	(800) 547-0792
REACT (St. Louis)	(800) 325-1398

TABLE 6

EMERGENCY RESPONSE AGENCIES

Name		Telephone Number
Bartonville Fire Department	Fire/explosion	(309) 697-2323
Bartonville Police Department	Police/ambulance	(309) 697-2323
St. Francis Medical Center	Hospital	(309) 655-3701
Advance Medical Transport	Ambulance	(309) 693-6120
Peoria Emergency Services & Disaster Agency (ESDA)		(309) 686-3521
Peoria County ESDA		(309) 691-3111
National Response Center		(800) 424-8802
Illinois EMA		(800) 782-7860
Illinois State Police		(309) 676-2116
PDC Response		(309) 674-4238

TABLE 7

PROPERTIES OF HAZARDOUS WASTE IN STORAGE

Parameter	Hazardous Waste					
	Waste Paint D001	Waste Flammable Liquid D001	Naphtha D001	Acid Sludge K062	1,1,1, Trichloroethane F001/F002	Perchloroethylene F001/F002
LEL (%)	1.1	1	0.8	None	7%	None
UEL (%)	12	6	7	None	16%	None
Flash Point (°F)	230	120 - 165	102	None	None	None
Boiling Point (°F)	180 - 340	300 - 580	301 - 392	None	165	250
Vapor Pressure @ 20 °C (mm Hg)	0.7 - 30	Negligible	2	None	100	16
Vapor Density (air = 1.0)	>1.0	---	5	None	4.55	5.2
Specific Gravity (water = 1.0)	1.0	0.83	0.78	1.1	1.34	1.62
NFPA Designation	Combustible	Combustible	Combustible	---	Combustible	---

Key:

LEL = Lower Exposure Limit
UEL = Upper Exposure Limit

TABLE 8

SUMMARY OF EXPOSURE LIMITS

	Waste Flammable Liquid	Waste Paint	Naphtha	Carbon[1] Monoxide	K062	1,1,1, Trichloroethane	Perchloroethylene
NIOSH IDLH	–	–	5,000	1,500	–	1,000	500
ACGIH TLV-STEL	–	–	–	400	–	450	200
ACGIH TLV-TWA	–	25	100	50	–	350	50
ACGIH TLV-C	–	–	–	–	–	–	–
NIOSH TLV-TWA	–	–	100	35	–	–	–
NIOSH TLV-C/15m	–	–	–	200[2]	–	350	–
OSHA PEL	–	–	100	50	–	350	5
EEGL (60 min)	–	–	–	400	–	–	–
SPEGL	–	–	–	–	–	–	–
NFPA ALC (15 min)	–	–	–	–	–	–	–

Notes:

[1] Formed in a fire

[2] TLV-C with no minimum time

IDLH Immediately Dangerous to Life or Health levels (30 min)
STEL Short-term Exposure Limit based on 15-minute time-weighted average for workers
TWA Time-weighted average based on normal 8 hour days/40 hour weeks work exposure
C Ceiling or maximum value that should never be exceeded during work
PEL Permissible Exposure Limit for workers
SPEGL Short-term Public Emergency Guidance Levels
EEGL Emergency Exposure Guidance Limits (60 min)
ALC Approximate 15-minute Lethal Concentration

TABLE 9

EMERGENCY EVACUATION SCENARIOS

Spill Inside HWAA	No Evacuation of HWAA or Area	Evacuate HWAA or Immediate Area	Evacuate 100 yard radius	Evacuate 1/4 mile radius
< 10 gallons	X			
< 100 gallons		X		
< 500 gallons			X	
> 500 gallons				X
Spill Outside HWAA				
< 100 gallons		X		
< 500 gallons			X	
> 500 gallons				X
Fire[1]				X

Note:

(1) Fire of maximum in storage.

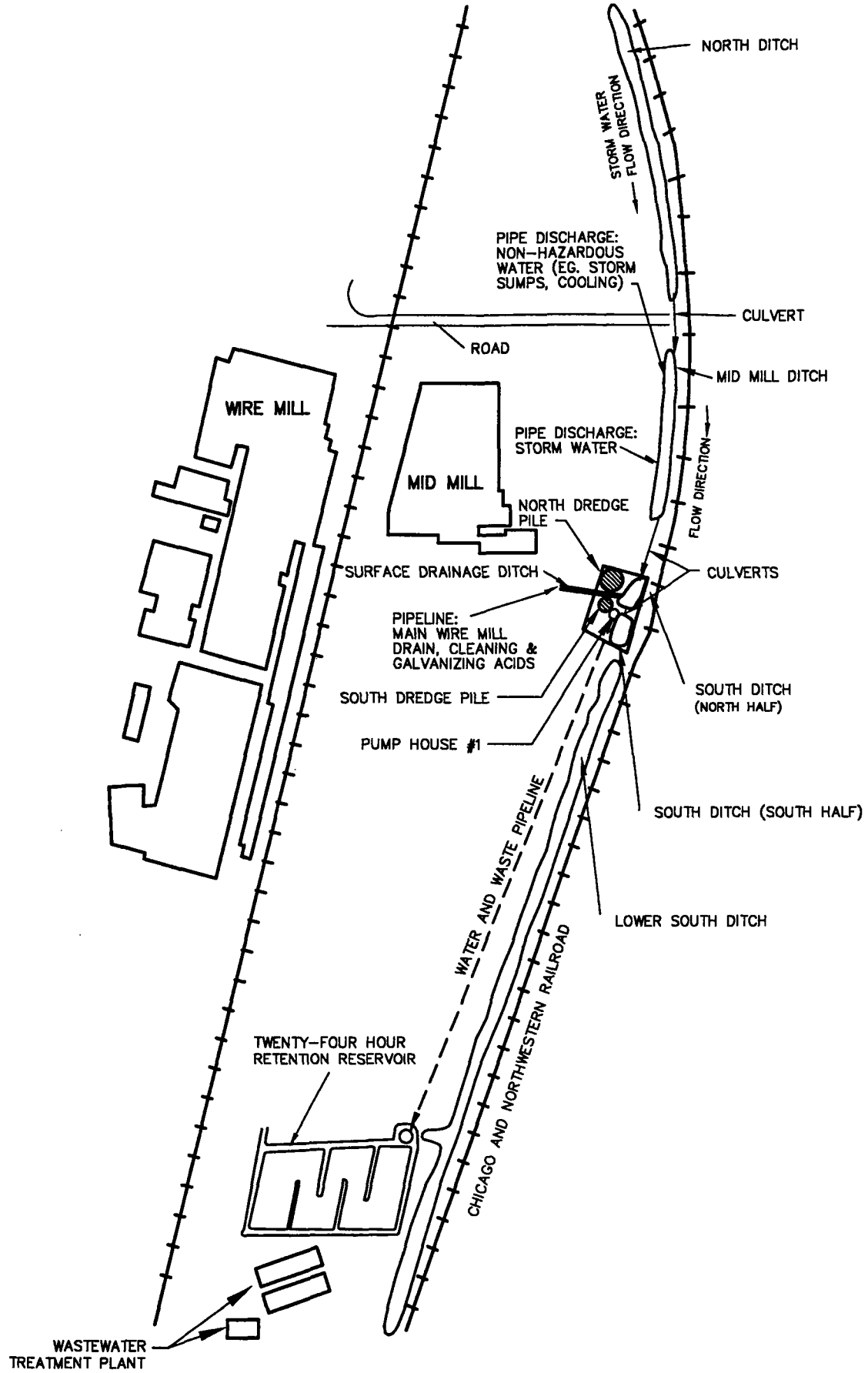


FIGURE 2

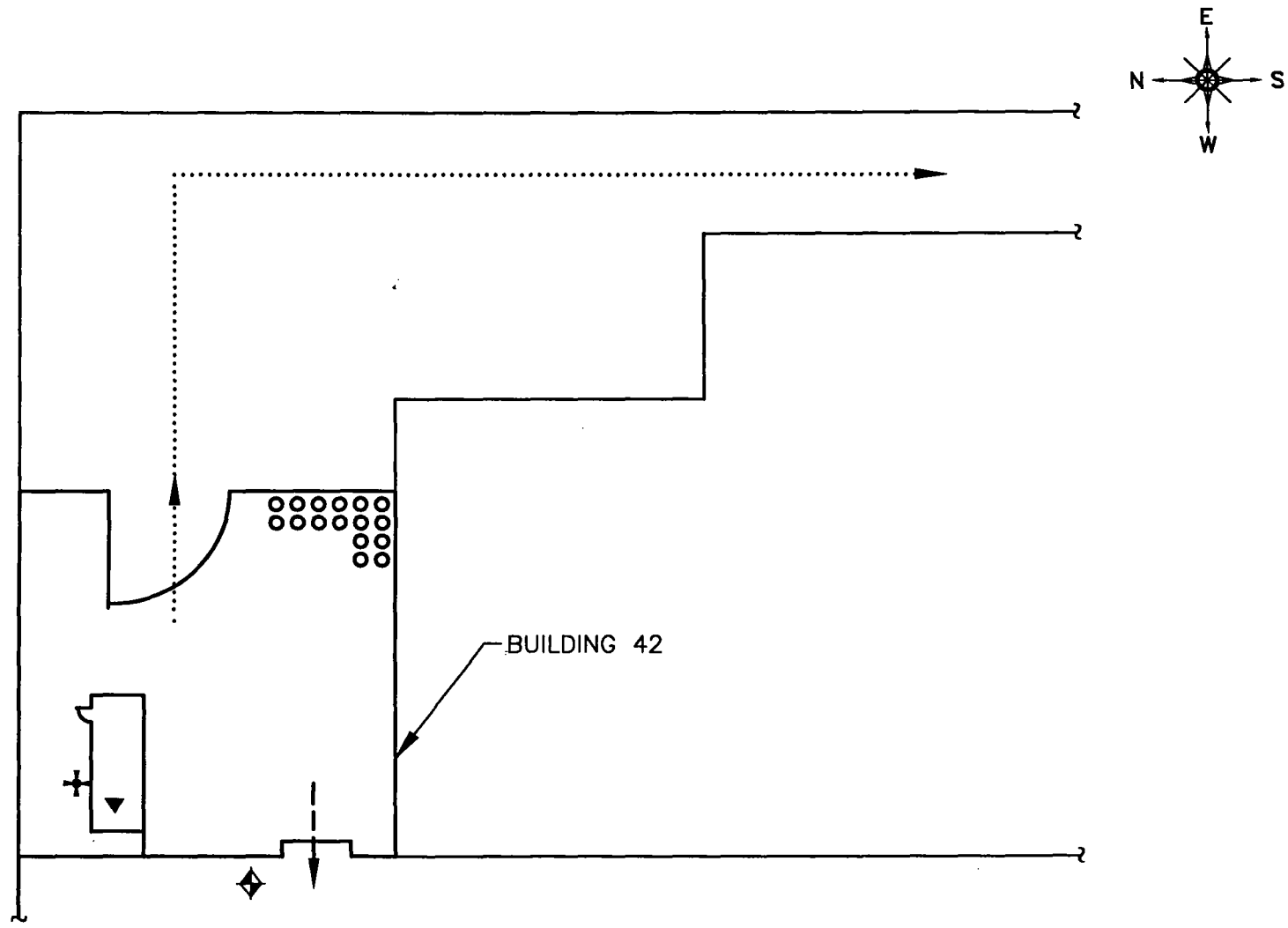
LOCATION OF WASTE MANAGEMENT CLOSURE UNITS
KEYSTONE STEEL AND WIRE COMPANY
BARTONVILLE, ILLINOIS

APPROX. SCALE (ft.)
0 600

PROJECT: 92136-01
REPORT: CP
DRAWN: CMM
CHECKED:
DATED: 12/1/93
APPROVED:
CLIENT NAME: KEYSTONE STEEL AND WIRE COMPANY

ERM

PROJECT:	REPORT:	DRAWN:	CHECKED:	DATE:	APPROVED:	CLIENT NAME:
92136-1	CP	CMM		12/1/93		KETYSTONE STEEL AND WIRE COMPANY



NOT DRAWN TO SCALE

SYMBOL LEGEND:

- FIRE EXTINGUISHERS
- PRIMARY EGRESS ROUTE
- SECONDARY EGRESS ROUTE
- TELEPHONE
- SPILL RESPONSE KIT
- WASTE STORAGE DRUMS

FIGURE 3

BUILDING 42
WASTE STORAGE LAYOUT AND EVACUATION ROUTE
KEYSTONE STEEL AND WIRE COMPANY
BARTONVILLE, ILLINOIS

ERM

EXHIBITS

EXHIBIT 1

WASTE ACCUMULATION AREA
WEEKLY INSPECTION LOG

Waste Accumulation Area No. 1: Building 42	
Waste Types Present:	**Number of Drums**

Drum Conditions	**Good**	**Defects**	**Defective Drums No./Comments**
Aisle Space (4 ft)			
Bulges			
Dents			
Bungs Tight			
Rust			
Pallet Condition			
Completed Labels (Legible)			
Warning Signs			
Security			
Spills or Leaks			

(Make additional copies for additional sources)

Comments: _____

_____

_____

_____

_____

Inspector Signature: _____ **Date:** _____

EXHIBIT 2

EMERGENCY AND RESPONSE EQUIPMENT
MONTHLY INSPECTION LOG

Item			Date Inspected
Fire Extinguishers			
Item	**Quantity**	**Condition**	**Location**
Absorbents			
Shovels & Brooms			
Emtpy Drums & Buckets			
Portable Pump(s)			
Forklift/Drum Dolly			
Protective Equipment			
First Aid Equipment			
Safety Shower/Eye Wash			

Comments: _____

_____

_____

_____

Inspector Signature: _____ **Date:** _____

EXHIBIT 3

SURFACE IMPOUNDMENT
DAILY INSPECTION LOG

Ditch	Freeboard Level (ft)	Overflows/Leaks/Dike Failure
North Ditch		
Mid-Mill Ditch		
South Ditch - North Half		
South Ditch - South Half		
Surface Drainage Ditch		
Lower South Ditch		
24-hr. Retention Reservoir		

Note: The minimum acceptable freeboard is 2.0 feet.

Comments: _____

_____

_____

_____

_____

_____

Inspector Signature: _____ **Date:** _____

EXHIBIT 4

INSPECTION SCHEDULE

Item	Type of Problem	Inspection
Waste Accumulation Area	Open containers Corrosion Leaks Labeling Quantity Evidence of spills or leaks	Weekly
Emergency Equipment	Missing items Damaged items Improper location	Monthly
Personnel Protective Equipment	Missing items Damaged items Improper location	Monthly
Security Equipment and Facility Periphery	Inoperable equipment Missing or damaged signs Damage to fence or gate	Weekly
Surface Impoundments (Ditches)	Freeboard Overflows/Leaks/Dike failure	Daily

APPENDICES

APPENDIX A

Compound	ID Number	Guide Number
Waste Paint	1263	26
Waste Naphtha	1255	27
Acid Sludge	1832	39
Waste Flammable Liquid	1993	27
Spent 1,1,1, trichloroethane	2831	74
Spent perchloroethylene	1897	74

Note:

None of these materials have initial isolation and protective action distances listed for spills in the Emergency Response Guidebook.

GUIDE 26

POTENTIAL HAZARDS

FIRE OR EXPLOSION

Flammable/combustible material; may be ignited by heat, sparks or flames.
Vapors may travel to a source of ignition and flash back.
Container may explode in heat of fire.
Vapor explosion hazard indoors, outdoors or in sewers.
Runoff to sewer may create fire or explosion hazard.

HEALTH HAZARDS

May be poisonous if inhaled or absorbed through skin.
Vapors may cause dizziness or suffocation.
Contact may irritate or burn skin and eyes.
Fire may produce irritating or poisonous gases.
Runoff from fire control or dilution water may cause pollution.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind; keep out of low areas.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.
Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.
CALL CHEMTREC AT 1-800-424-9300 FOR EMERGENCY ASSISTANCE.
If water pollution occurs, notify the appropriate authorities.

FIRE

Small Fires: Dry chemical, CO_2, water spray or alcohol-resistant foam.
Large Fires: Water spray, fog or alcohol-resistant foam.
Do not use dry chemical extinguishers to control fires involving nitromethane or nitroethane.
Move container from fire area if you can do it without risk.
Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks.
For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area.
Stop leak if you can do it without risk.
Water spray may reduce vapor; but it may not prevent ignition in closed spaces.
Small Spills: Take up with sand or other noncombustible absorbent material and place into containers for later disposal.
Large Spills: Dike far ahead of liquid spill for later disposal.

FIRST AID

Move victim to fresh air and call emergency medical care; if not breathing, give artificial respiration; if breathing is difficult, give oxygen.
In case of contact with material, immediately flush eyes with running water for at least 15 minutes. Wash skin with soap and water.
Remove and isolate contaminated clothing and shoes at the site.

POTENTIAL HAZARDS

FIRE OR EXPLOSION

Flammable/combustible material; may be ignited by heat, sparks or flames.
Vapors may travel to a source of ignition and flash back.
Container may explode in heat of fire.
Vapor explosion hazard indoors, outdoors or in sewers.
Runoff to sewer may create fire or explosion hazard.

HEALTH HAZARDS

May be poisonous if inhaled or absorbed through skin.
Vapors may cause dizziness or suffocation.
Contact may irritate or burn skin and eyes.
Fire may produce irritating or poisonous gases.
Runoff from fire control or dilution water may cause pollution.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind; keep out of low areas.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.
Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.
CALL CHEMTREC AT 1-800-424-9300 FOR EMERGENCY ASSISTANCE.
If water pollution occurs, notify the appropriate authorities.

FIRE

Small Fires: Dry chemical, CO2, water spray or regular foam.
Large Fires: Water spray, fog or regular foam.
Move container from fire area if you can do it without risk.
Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks.
For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area.
Stop leak if you can do it without risk.
Water spray may reduce vapor; but it may not prevent ignition in closed spaces.
Small Spills: Take up with sand or other noncombustible absorbent material and place into containers for later disposal.
Large Spills: Dike far ahead of liquid spill for later disposal.

FIRST AID

Move victim to fresh air and call emergency medical care; if not breathing, give artificial respiration; if breathing is difficult, give oxygen.
In case of contact with material, immediately flush eyes with running water for at least 15 minutes. Wash skin with soap and water.
Remove and isolate contaminated clothing and shoes at the site.

POTENTIAL HAZARDS

HEALTH HAZARDS

Poisonous if inhaled or swallowed.
Contact causes severe burns to skin and eyes.
Runoff from fire control or dilution water may cause pollution.

FIRE OR EXPLOSION

Some of these materials may burn, but none of them ignites readily.
May ignite other combustible materials (wood, paper, oil, etc.).
Violent reaction with water.
Flammable/poisonous gases may accumulate in tanks and hopper cars.
Runoff to sewer may create fire or explosion hazard.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind, out of low areas, and ventilate closed spaces before entering.
Positive pressure self-contained breathing apparatus (SCBA) and chemical protective clothing which is specifically recommended by the shipper or manufacturer may be worn. It may provide little or no thermal protection.
Structural firefighters' protective clothing is **not** effective for these materials.
Isolate the leak or spill area immediately for at least 150 feet in all directions.
See the Table of Initial Isolation and Protective Action Distances. If you find the ID Number and the name of the material there, begin protective action.
CALL CHEMTREC AT 1-800-424-9300 FOR EMERGENCY ASSISTANCE.

FIRE

Do not get water inside container.
Small Fires: Dry chemical or CO_2.
Large Fires: Flood fire area with water from a distance.
Do not get solid stream of water on spilled material.
Move container from fire area if you can do it without risk.
Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks.

SPILL OR LEAK

Do not touch or walk through spilled material; stop leak if you can do it without risk.
Fully-encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
Use water spray to reduce vapor; **do not** put water directly on leak, spill area or inside container.
Keep combustibles (wood, paper, oil, etc.) away from spilled material.
Spills: Dike for later disposal; **do not apply water** unless directed to do so.
Cleanup only under supervision of an expert.

FIRST AID

Move victim to fresh air and call emergency medical care; if not breathing, give artificial respiration; if breathing is difficult, give oxygen.
In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes.
Speed in removing material from skin is of extreme importance.
Remove and isolate contaminated clothing and shoes at the site.
Keep victim quiet and maintain normal body temperature.

GUIDE 74

POTENTIAL HAZARDS

HEALTH HAZARDS

Vapors may cause dizziness or suffocation.
Exposure in an enclosed area may be very harmful.
Contact may irritate or burn skin and eyes.
Fire may produce irritating or poisonous gases.
Runoff from fire control or dilution water may cause pollution.

FIRE OR EXPLOSION

Some of these materials may burn, but none of them ignites readily.
Most vapors heavier than air.
Air/vapor mixtures **may explode** when ignited.
Container may explode in heat of fire.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind, out of low areas, and ventilate closed spaces before entering.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.
Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.
Remove and isolate contaminated clothing at the site.
CALL CHEMTREC AT 1-800-424-9300 FOR EMERGENCY ASSISTANCE.
If water pollution occurs, notify the appropriate authorities.

FIRE

Small Fires: Dry chemical or CO2.
Large Fires: Water spray, fog or regular foam.
Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area.
Stop leak if you can do it without risk.
Small Liquid Spills: Take up with sand, earth or other noncombustible absorbent material.
Large Spills: Dike far ahead of liquid spill for later disposal.

FIRST AID

Move victim to fresh air and call emergency medical care; if not breathing, give artificial respiration; if breathing is difficult, give oxygen.
In case of contact with material, immediately flush eyes with running water for at least 15 minutes. Wash skin with soap and water.
Remove and isolate contaminated clothing and shoes at the site.
Use first aid treatment according to the nature of the injury.

61-50-0001
WM STORE

MATERIAL SAFETY DATA SHEET

87367 (4-85)

MSDS NUMBER ▶ 7,670-8 PAGE 1

24 HOUR EMERGENCY ASSISTANCE	GENERAL MSDS ASSISTANCE
SHELL: 713-473-9481 CHEMTREC: 800-424-9300	SHELL: 713-241-4819

ACUTE HEALTH *	FIRE	REACTIVITY	HAZARD RATING ▶
2	2	0	LEAST - 0 SLIGHT - 1 MODERATE - 2 HIGH - 3 EXTREME - 4

*For acute and chronic health effects refer to the discussion in Section III

BE SAFE
READ OUR PRODUCT SAFETY INFORMATION
...AND
PASS IT ON
(PRODUCT LIABILITY LAW REQUIRES IT)

SECTION I	NAME
PRODUCT ▶	SHELL SOL 340 HT
CHEMICAL NAME ▶	SOLVENT NAPHTHA (PETROLEUM), MEDIUM ALIPHATIC
CHEMICAL FAMILY ▶	HYDROCARBON SOLVENT
SHELL CODE ▶	83162

SECTION II-A PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NUMBER	PERCENT
P	SHELL SOL 340 HT*	64742-88-7	100

*A COMPLEX COMBINATION OF PREDOMINANTLY C9-C12 HYDROCARBONS; EXACT COMPOSITION WILL VARY.

SECTION II-B ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
**	>25 ML/KG (RAT)	>4 ML/KG (RABBIT)	>700 PPM/4H (RAT)

**BASED ON EITHER PRODUCT OR ESSENTIALLY SIMILAR PRODUCT TESTING.

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT
LIQUID IS PRACTICALLY NONIRRITATING TO THE EYES.

SKIN CONTACT
LIQUID IS SLIGHTLY IRRITATING TO THE SKIN. PROLONGED OR REPEATED LIQUID CONTACT CAN RESULT IN DEFATTING AND DRYING OF THE SKIN WHICH MAY RESULT IN SKIN IRRITATION AND DERMATITIS.

INHALATION
VAPORS MAY CAUSE IRRITATION TO NOSE, THROAT, AND RESPIRATORY TRACT. HIGH VAPOR CONCENTRATIONS MAY RESULT IN CNS DEPRESSION.

INGESTION
INGESTION OF PRODUCT MAY RESULT IN VOMITING; ASPIRATION (BREATHING) OF VOMITUS INTO THE LUNGS MUST BE AVOIDED AS EVEN SMALL QUANTITIES MAY RESULT IN ASPIRATION PNEUMONITIS.

SIGNS AND SYMPTOMS
IRRITATION AS NOTED ABOVE. EARLY TO MODERATE CNS (CENTRAL NERVOUS SYSTEM) DEPRESSION MAY BE EVIDENCED BY GIDDINESS, HEADACHE, DIZZINESS AND NAUSEA; IN EXTREME CASES, UNCONSCIOUSNESS AND DEATH MAY OCCUR. ASPIRATION PNEUMONITIS MAY BE EVIDENCED BY COUGHING, LABORED BREATHING AND CYANOSIS

(BLUISH SKIN); IN SEVERE CASES DEATH MAY OCCUR.

AGGRAVATED MEDICAL CONDITIONS
PREEXISTING EYE, SKIN, AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

NO.	OSHA PEL/TWA	OSHA PEL/CEILING	ACGIH TLV/TWA	ACGIH TLV/STEL	OTHER
P*	100 PPM		100 PPM		

*RECOMMEND THAT LIMITS FOR STODDARD SOLVENT BE USED AS A GUIDE.

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT
FLUSH EYES WITH PLENTY OF WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.

SKIN CONTACT
REMOVE CONTAMINATED CLOTHING/SHOES. FLUSH SKIN WITH WATER. FOLLOW BY WASHING WITH SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. DO NOT REUSE CLOTHING UNTIL CLEANED.

INHALATION
REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GIVE ARTIFICIAL RESPIRATION IF NOT BREATHING.

INGESTION
DO NOT INDUCE VOMITING. IF VOMITING OCCURS SPONTANEOUSLY, KEEP HEAD BELOW HIPS TO PREVENT ASPIRATION OF LIQUID INTO THE LUNGS. GET MEDICAL ATTENTION.*

NOTE TO PHYSICIAN
*IF MORE THAN 2.0 ML PER KG HAS BEEN INGESTED AND VOMITING HAS NOT OCCURRED, EMESIS SHOULD BE INDUCED WITH SUPERVISION. KEEP VICTIM'S HEAD BELOW HIPS TO PREVENT ASPIRATION. IF SYMPTOMS SUCH AS LOSS OF GAG REFLEX, CONVULSIONS OR UNCONSCIOUSNESS OCCUR BEFORE EMESIS, GASTRIC LAVAGE USING A CUFFED ENDOTRACHAEL TUBE SHOULD BE CONSIDERED.

SECTION VI SUPPLEMENTAL HEALTH INFORMATION

MALE RATS EXPOSED FOR 90 DAYS BY INHALATION TO VAPORS OF SIMILAR SOLVENTS SHOWED EVIDENCE OF KIDNEY DAMAGE. THE RELEVANCE OF THIS EFFECT TO MAN IS UNKNOWN. IN ONE OF THE STUDIES A LOW GRADE ANEMIA WAS ALSO OBSERVED.

ECTION VII PHYSICAL DATA

[B]OILING POINT: 319-348 (DEG F)	SPECIFIC GRAVITY: 0.77 (H2O=1)	VAPOR PRESSURE: <5 @ 100 DEG F (MM HG)
MELTING POINT: NOT AVAILABLE (DEG F)	SOLUBILITY: NEGLIGIBLE (IN WATER)	VAPOR DENSITY: 4.7 (AIR=1)

EVAPORATION RATE (N-BUTYL ACETATE = 1): 0.15

APPEARANCE AND ODOR:
LIGHT COLORED LIQUID. HYDROCARBON ODOR.

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:
103 DEG F (TCC)

FLAMMABLE LIMITS /% VOLUME IN AIR
LOWER: 1 UPPER: 7

EXTINGUISHING MEDIA
USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. DO NOT USE A DIRECT STREAM OF WATER. PRODUCT WILL FLOAT AND CAN BE REIGNITED ON SURFACE OF WATER.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS
CAUTION. COMBUSTIBLE. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

UNUSUAL FIRE AND EXPLOSION HAZARDS
CONTAINERS EXPOSED TO INTENSE HEAT FROM FIRES SHOULD BE COOLED WITH WATER TO PREVENT VAPOR PRESSURE BUILDUP WHICH COULD RESULT IN CONTAINER RUPTURE. CONTAINER AREAS EXPOSED TO DIRECT FLAME CONTACT SHOULD BE COOLED WITH LARGE QUANTITIES OF WATER AS NEEDED TO PREVENT WEAKENING OF CONTAINER STRUCTURE.

SECTION IX REACTIVITY

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:
AVOID HEAT, FLAME AND CONTACT WITH STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS
CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED DURING COMBUSTION.

SECTION X EMPLOYEE PROTECTION

RESPIRATORY PROTECTION
AVOID PROLONGED OR REPEATED BREATHING OF VAPORS. IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SEC. IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS.

OSHA HAS ESTABLISHED TRANSITIONAL OCCUPATIONAL EXPOSURE LIMITS FOR THIS PRODUCT AND/OR COMPONENTS OF THIS PRODUCT. REFER TO 29 CFR 1910.1000 FOR THESE TRANSITIONAL LIMITS AND REQUIREMENTS FOR MEETING THESE LIMITS.

PROTECTIVE CLOTHING
AVOID CONTACT WITH EYES. WEAR SAFETY GLASSES OR GOGGLES AS APPROPRIATE. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WEAR CHEMICAL-RESISTANT GLOVES AND OTHER CLOTHING AS REQUIRED TO MINIMIZE CONTACT. TEST DATA FROM PUBLISHED LITERATURE AND/OR GLOVE AND CLOTHING MANUFACTURERS INDICATE THE*

ADDITIONAL PROTECTIVE MEASURES
BEST PROTECTION IS PROVIDED BY NITRILE MATERIAL. USE EXPLOSION-PROOF VENTILATION AS REQUIRED TO CONTROL VAPOR CONCENTRATIONS. AIR-DRY CONTAMINATED CLOTHING IN A WELL VENTILATED AREA THEN LAUNDER BEFORE REUSING.

PRODUCT NAME: SHELL SOL 340 HT

SECTION XI ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES
CAUTION. COMBUSTIBLE. *** LARGE SPILLS *** ELIMINATE POTENTIAL SOURCES OF IGNITION. WEAR APPROPRIATE RESPIRATOR AND OTHER PROTECTIVE CLOTHING. SHUT OFF SOURCE OF LEAK ONLY IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND, OR OTHER SUITABLE MATERIAL; PLACE IN NON-LEAKING CONTAINERS AND SEAL TIGHTLY FOR PROPER DISPOSAL. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE; DISPOSE OF FLUSH SOLUTION AS ABOVE. *** SMALL SPILLS *** TAKE UP WITH AN ABOSRBENT MATERIAL AND PLACE IN NON-LEAKING CONTAINERS FOR PROPER DISPOSAL.

SECTION XII SPECIAL PRECAUTIONS

KEEP LIQUID AND VAPOR AWAY FROM HEAT, SPARKS AND FLAME. SURFACES THAT ARE SUFFICIENTLY HOT MAY IGNITE EVEN LIQUID PRODUCT IN THE ABSENCE OF SPARKS OR FLAME. EXTINGUISH PILOT LIGHTS, CIGARETTES AND TURN OFF OTHER SOURCES OF IGNITION PRIOR TO USE AND UNTIL ALL VAPORS ARE GONE. VAPORS MAY ACCUMULATE AND TRAVEL TO IGNITION SOURCES DISTANT FROM THE HANDLING SITE; FLASH-FIRE CAN RESULT. KEEP CONTAINERS CLOSED WHEN NOT IN USE. USE WITH ADEQUATE VENTILATION.

CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, CAN CONTAIN EXPLOSIVE VAPORS. DO NOT CUT, DRILL, GRIND, WELD OR PERFORM SIMILAR OPERATIONS ON OR NEAR CONTAINERS.

STATIC ELECTRICITY MAY ACCUMULATE AND CREATE A FIRE HAZARD. GROUND FIXED EQUIPMENT. BOND AND GROUND TRANSFER CONTAINERS AND EQUIPMENT.

SECTION XIII TRANSPORTATION REQUIREMENTS

EPARTMENT OF TRANSPORTATION CLASSIFICATION:
COMBUSTIBLE LIQUID

.O.T. PROPER SHIPPING NAME:
ETROLEUM NAPHTHA

OTHER REQUIREMENTS:
N 1255. GUIDE SHEET 27.

ECTION XIV OTHER REGULATORY CONTROLS

THIS PRODUCT IS LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES

ACCORDANCE WITH SARA TITLE III, SECTION 313, THE EDS SHOULD ALWAYS BE COPIED AND SENT WITH THE DS.

ECTION XV STATE REGULATORY INFORMATION

PRODUCT NAME: SHELL SOL 340 HT

THIS INFORMATION IS BEING SYSTEMATICALLY ADDED TO OUR MSDS. IT HAS PREVIOUSLY BEEN PROVIDED TO YOU IN VARIOUS WAYS, INCLUDING THE MSDS. THE NEW MSDS FORMAT IS INTENDED TO PROVIDE THE USER WITH THE INFORMATION IN A MORE CONVENIENT MANNER.

SECTION XVI SPECIAL NOTES

THE OCCUPATIONAL EXPOSURE LIMITS (SECTION IV) AND/OR THE RESPIRATORY PROTECTION PRECAUTIONS (SECTION X) HAVE BEEN REVISED.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: JUNE 13, 1988

BE SAFE

READ OUR PRODUCT
SAFETY INFORMATION ...AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

J. C. WILLETT

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX 77210

MATERIAL SAFETY DATA SHEET
(OSHA FORM 174)

IDENTITY: PETROLEUM NAPTHA

SECTION I

Manufacturer's Name:
Keystone Steel & Wire Co.

Address:
7000 SW Adams St.
Peoria, IL 61641

Emergency Telephone No.:
309-697-7020

Telephone No. For Information:
309-697-7020

Date Prepared: February, 1992

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components:	OSHA PEL	ACGIH TLV
Petroleum Naptha (V,M&P Naptha) CAS No. 64742-89-8	300 ppm 400 ppm (STEL)	300 ppm

STEL - Short Term Exposure Limit

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: ^{o}C 247-282
Vapor Pressure (mm Hg.): @ 100^{o}F 26mm
Vapor Density (AIR = 1): 3.8
Specific Gravity: 0.75
Melting Point: N/A
Evaporation Rate (Butyl Acetate = 1): Not Found
Solubility in Water: Negligible
Appearance and Odor: Light colored liquid, hydrocarbon odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): 55°F (TCC)

Flammable Limits: LEL: 1% UEL: 7%

Extinguishing Media: Water fog, dry chemical, foam or carbon dioxide.

Special Fire Fighting Procedures: Flammable. Use NIOSH approved positive pressure, self-contained breathing apparatus. Cool fire exposed containers with water.

Unusual Fire and Explosion Hazards: Containers exposed to intense heat should be cooled with water to prevent vapor pressure build-up which could cause container rupture.

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SECTION V - REACTIVITY DATA

Stability: Unstable _____ Conditions To Avoid: N/A
Stable _____

Incompatibility (Materials To Avoid): Avoid heat, sparks, flames & strong oxidizing agents.

Hazardous Decomposition or By-products: Carbon monoxide, unidentified organic compounds.

Hazardous Polymenzation: May Occur: XX Conditions to Avoid:
Will Not Occur: XX

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SECTION VI - HEALTH HAZARD DATA

ROUTE(S) OF ENTRY:	Inhalation?	Skin?	Ingestion?
	XX	XX	XX

Health Hazards (Acute and Chronic): Eye & respiratory irritant. Mild skin irritant; repeated or prolonged liquid contact can cause skin irritation & dermatitis. High vapor concentration may cause central nervous system depression, see symptoms below. Male rate exposed to long term inhalation studies of high vapor concentrations of similar solvents showed evidence of kidney damage. The relevance of this effect to man is unknown.

CARCINOGENICITY:	NTP?	IARC Monographs?	OSHA Regulated?
	No	No	No

Signs and Symptoms of Exposure:

Medical Conditions Generally Aggravated by Exposure: Pre-Existing eye, skin & respiratory disorders may be aggravated by exposure to this product.

Emergency and First Aid Procedures:

Eye contact - Flush eyes with plenty of water for 15 minutes while holding eyelids open. Get medical attention.

Skin contact - Remove contaminated clothing/shoes. Flush skin with water. Follow by washing with soap and water. If irritation occurs. Get medical attention. Do not reuse clothing until cleaned.

Inhalation - Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

Ingestion - Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention.

Note To Physician - * If more than 2.0 ml per kg has been ingested and vomiting has not occurred, emesis should be induced with supervision. Keep victim's head below hips to prevent aspiration. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before emesis, gastric lavage using a cuffed endotracheal tube should be considered.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING USE

Steps to Be Taken in Case Material Is Released or Spilled:
Warning flammable - Eliminate all ignition sources. Ground handling equipment to prevent sparking.
Large spills - Evacuate the hazard area of unprotected personnel. Wear appropriate respirator and protective clothing. Shut off source of leak only if safe to do so. Dike and contain. If vapor cloud forms, water fog may be used to suppress; contain run-off, such as clay, sand or other suitable material; place in non-leaking containers for proper disposal. Flush area with water to remove trace residue; dispose of flush solutions as above.
Small spills - Take up with an absorbent material and place in non-leaking containers; seal tightly for proper disposal.

Waste Disposal Method: Dispose in accordance with all applicable federal, state & local environmental regulations.

Precautions to Be Taken in Handling and Storing: Store in tightly closed container. Keep liquid and vapor away from heat, sparks & flames. Vapors can accumulate & travel to distant ignition sources causing a flash fire.

Other Precautions: Use with adequate ventilation. Do not cut, drill, grind, weld or perform similar operations on containers, even if empty. Static electricity may cause a fire hazard. Ground fixed equipment; bond and ground transfer containers & equipment.

==========

SECTION VIII - CONTROL MEASURES

Respiratory Protection (Specify Type): If exposure may or does exceed OHSA limits, use NIOSH approved organic vapor respirator or supplied air respirator.

Consult respirator manufacturer for assistance in choosing appropriate respirator. If respirators are used employees must have a respirator program which complies with OSHA 1910.134.

Ventilation: Local Exhaust - Use explosion proof ventilation as required to control vapor.

Protective Gloves: Use nitrile or polyvinyl alcohol gloves to avoid prolonged or repeated skin contact.

Eye Protection: Safety glasses or goggles.

Other Protective Clothing or Equipment: As necessary to minimize skin contact. Avoid prolonged or repeated skin contact.

Work/Hygienic Practices: Avoid breathing vapors or mist. Avoid eye contact.

==========

SARA 313 INFORMATION: This product does not contain any substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

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The information herein is provided in good faith and is believed to be correct and complete as of the date issued. This document is intended as a guide to appropriate handling precautions of the material. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application.

No representations or warranties either expressed or implied of merchantibility, fitness for a particular purpose or any other nature are made with respect to either the information set forth herein or to the product to which the information refers.

MATERIAL SAFETY DATA SHEET

NATIONAL COATINGS, INC.
ROUTE 150 EAST
GALESBURG, IL 61401

INFORMATION TELEPHONE NO.: 309-342-4184
EMERGENCY TELEPHONE NO.: 309-342-4184

PREPARATION DATE: 02/13/92 REPLACES DATE: 10/11/90 PREPARER: KH

SECTION I - PRODUCT IDENTIFICATION

W/R RED WIRE COATING GALV.

160-R-16

SECTION II - HAZARDOUS INGREDIENTS

CHEMICAL NAME	CAS NUMBER	WT. PERCENT IS LESS THAN	OCCUPATIONAL EXPOSURE LIMITS (TLV-TWA)	(TLV-STEL)	SKIN DESIG-NATION	VAPOR PRESSURE mmHg 20C	KNOWN OR SUSPECTED CARCINOGEN	SEC 313
BUTYL CELLOSOLVE	111-76-2	10%	25 ppm	NO INFO	NO	0.7	NO	YES

THIS PRODUCT CONTAINS ONE OR MORE MATERIALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND THE COMMUNITY RIGHT-TO-KNOW ACTS OF 1986 AND OF 40 CFR 372.

N.A. - NOT APPLICABLE

SECTION III - PHYSICAL DATA

BOILING RANGE : 336- 340 F
ODOR :
APPEARANCE :
VOLATILE BY WEIGHT: 79.6%
VOLATILE BY VOLUME: 81.9%

VAPOR DENSITY : IS HEAVIER THAN AIR
EVAPORATION RATE: IS SLOWER THAN ETHER
SOLUBILITY :
PRODUCT DENSITY : 8.4 LBS./GAL. (US)

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:

OSHA - COMBUSTIBLE LIQUID - CLASS IIIB
DOT - NOT REGULATED

FLASH POINT: 230 F (SETAFLASH CLOSED CUP)
LEL: 1.1 %
UEL: 10.6 %

EXTINGUISHING MEDIA: FOAM DRY CHEMICAL CARBON DIOXIDE WATER FOG

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

UNUSUAL FIRE AND EXPLOSION HAZARDS: KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT. ELECTRICAL EQUIPMENT, SPARKS AND OPEN FLAME. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT.

SPECIAL FIREFIGHTING PROCEDURES: THE USE OF SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED FOR FIREFIGHTERS. WATER SPRAY MAY BE USED FOR COOLING CONTAINERS TO PREVENT POSSIBLE PRESSURE BUILD-UP AND POSSIBLE AUTOIGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVER EXPOSURE:

EYE CONTACT: SEVERE IRRITATION, REDNESS, TEARING AND BLURRED VISION.

SKIN CONTACT: SLIGHT IRRITATION. PROLONGED OR REPEATED EXPOSURE CAN CAUSE DERMATITIS.

SKIN ABSORPTION: REPEATED EXPOSURE TO HIGH CONCENTRATIONS THROUGH ABSORPTION MAY CAUSE INJURY TO BONE MARROW AND BLOOD CELLS, KIDNEY, LIVER AND TESTES.

INHALATION: EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, AND HEADACHE. HIGH CONCENTRATIONS MAY RESULT IN NARCOSIS.

INGESTION: CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: THIS MATERIAL MAY AGGRAVATE AN EXISTING DERMATITIS. BREATHING OF VAPOR AND\OR MIST MAY AGGRAVATE ASTHMA AND INFLAMMATORY FIBROTIC PULMONARY DISEASE.

PRIMARY ROUTE(S) OF ENTRY: INHALATION INGESTION

EMERGENCY AND FIRST AID PROCEDURES:

EYE CONTACT: FLUSH WITH CLEAN, LUKEWARM WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE EYELIDS. OBTAIN MEDICAL ATTENTION.

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING. WASH AFFECTED SKIN AREAS THOROUGHLY WITH SOAP AND WATER. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE.

INHALATION: REMOVE TO FRESH AIR. APPLY ARTIFICIAL RESPIRATION OR ADMINISTER OXYGEN, IF NECESSARY. CALL A PHYSICIAN IMMEDIATELY.

INGESTION: IMMEDIATELY GIVE TWO GLASSES OF WATER AND INDUCE VOMITING EITHER BY GIVING IPEPAC SYRUP OR BY PLACING FINGER AT BACK OF THROAT. NEVER ADMINISTER ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET IMMEDIATE MEDICAL ATENTION.

SECTION VI - REACTIVITY DATA

STABILITY: THIS PRODUCT IS STABLE UNDER NORMAL STORAGE CONDITIONS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR UNDER NORMAL CONDITIONS.

HAZARDOUS DECOMPOSITION PRODUCTS: IF THERMAL DECOMPOSITION OCCURS IT MAY YIELD CARBON DIOXIDE AND / OR CARBON MONOXIDE.

CONDITIONS TO AVOID: NONE KNOWN

INCOMPATABILITY: NONE REASONALLY FORESEEABLE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: EVACUATE ALL NON-ESSENTIAL PERSONNEL. REMOVE ALL SOURCES OF IGNITION. VENTILATE THE AREA. EQUIP EMPLOYEES WITH APPROPRIATE PROTECTION EQUIPMENT (SEE SECTION VIII.). DIKE AROUND SPILLED MATERIAL. COVER SPILL WITH INERT ABSORBENT MATERIAL AND SHOVEL WITH NON-SPARKING TOOLS INTO CONTAINER. REMOVE CONTAINERS TO A SAFE AREA AND SEAL.

WASTE DISPOSAL METHOD: WASTE MATERIAL MUST BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATORY CONTROLS.

CONTAINER DISPOSAL METHOD: WE RECOMMEND THAT CONTAINERS BE EITHER PROFESSIONALLY RECONDITIONED FOR REUSE BY CERTIFIED FIRMS OR PROPERLY DISPOSED OF BY CERTIFIED FIRMS TO HELP REDUCE THE POSSIBILITY OF AN ACCIDENT. DISPOSAL OF CONTAINERS SHOULD BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS. "EMPTY DRUMS SHOULD NOT BE GIVEN TO INDIVIDUALS".

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION: USE SELF-CONTAINED BREATHING APPARATUS WHERE VAPOR CONCENTRATION MAY BE ABOVE TLV LIMITS. BELOW THE TLV LIMITS, USE A NIOSH-APPROVED VAPOR RESPIRATOR.

VENTILATION: LOCAL EXHAUST MUST BE SUFFICIENT TO KEEP AIRBORNE VAPOR CONCENTRATIONS BELOW THE TLV LIMIT. EXHAUST AIR MAY NEED TO BE CLEANED BY SCRUBBERS OR FILTERS TO REDUCE ENVIRONMENTAL CONTAMINATION.

PROTECTIVE GLOVES: BUTYL RUBBER

EYE PROTECTION: SAFETY GLASSES WITH SIDE SHIELDS.

OTHER PROTECTIVE EQUIPMENT: EYE BATH AND SAFETY SHOWER. TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING, BOOTS AND PROTECTIVE CREAM IF NECESSARY.

HYGENIC PRACTICES: WASH HANDS BEFORE EATING, SMOKING, BREAKS, OR USING RESTROOM.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: SEE SECTION X

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

DRUMS: PROTECT AGAINST PHYSICAL DAMAGE. OUTSIDE OR DETACHED STORAGE PREFERRED. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME. CLOSE CONTAINERS AFTER EACH USE.

BULK: STORAGE SHOULD BE IN STANDARD FLAMMABLE LIQUID STORAGE TANKS AWAY FROM HEAT, SPARKS, AND OPEN FLAME.

OTHER PRECAUTIONS: ALL EQUIPMENT SHOULD BE GROUNDED AND BONDED TO REDUCE STATIC ELECTRICITY HAZARD. USE NON-SPARKING TOOLS.

SECTION X - HMIS RATINGS

HEALTH: 2 FLAMMABILITY: 2 REACTIVITY: 0 PERSONAL PROTECTION: G

SECTION XI - ADDITIONAL PRODUCT INFORMATION

OBSERVE LABLE PRECAUTIONS: "THIS MATERIAL DOES NOT CONTAIN INTENTIONALLY ADDED INGREDIENTS WHICH ARE BASED ON COMPOUNDS OF ANTIMONY, ARSENIC, CADMIUM, LEAD, CHROMATE, MERCURY, SELENIUM OR WATER SOLUBLE BARIUM." THAT MAY EXCEED ALLOWABLE LIMITS ESTABLISHED BY CONSUMER PRODUCT SAFETY COMMISION.

DISCLAIMERS: WHILE NATIONAL COATINGS, INC., BELIEVES THE INFORMATION CONTAINED HEREIN IS, ACCURATE AND DERIVED FROM RELIABLE SOURCES. THE DATA IS PROVIDED WITHOUT REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS ACCURACY OR CORRECTNESS. THE DATA IS OFFERED SOLELY FOR YOUR CONSIDERATION, INVESTIGATION, AND CERTIFICATION.

M A T E R I A L S A F E T Y D A T A S H E E T

NATIONAL COATINGS, INC.
ROUTE 150 EAST
GALESBURG, IL 61401

INFORMATION TELEPHONE NO.: 309-342-4184
EMERGENCY TELEPHONE NO.: 309-342-4184

PREPARATION DATE: 02/13/92 REPLACES DATE: NEW MSDS PREPARER: KH

SECTION I - PRODUCT IDENTIFICATION

W/R YELLOW NAIL COATING

160-Y-11

SAME AS RED

SECTION II - HAZARDOUS INGREDIENTS

CHEMICAL NAME	CAS NUMBER	WT. PERCENT IS LESS THAN	OCCUPATIONAL EXPOSURE LIMITS (TLV-TWA)	(TLV-STEL)	SKIN DESIG-NATION	VAPOR PRESSURE mmHg 20C	KNOWN OR SUSPECTED CARCINOGEN	SEC 313
ISOPROPYL ALCOHOL	67-63-0	5%	980 mg/m3	1225 mg/m3	NO	30.0	NO	NO
BUTYL CELLOSOLVE	111-76-2	10%	25 ppm	NO INFO	NO	0.7	NO	YES

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N.A. - NOT APPLICABLE

SECTION III - PHYSICAL DATA

BOILING RANGE : 180- 340 F
ODOR :
APPEARANCE :
VOLATILE BY WEIGHT: 78.3%
VOLATILE BY VOLUME: 80.6%

VAPOR DENSITY : IS HEAVIER THAN AIR
EVAPORATION RATE: IS SLOWER THAN ETHER
SOLUBILITY :
PRODUCT DENSITY : 6.4 LBS./GAL. (US)

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:

OSHA - COMBUSTIBLE LIQUID - CLASS IIIB
DOT - NOT REGULATED

FLASH POINT: 230 F (SETAFLASH CLOSED CUP)
LEL: 1.1 %
UEL: 12.0 %

EXTINGUISHING MEDIA: DRY CHEMICAL FOAM CARBON DIOXIDE WATER FOG

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SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVER EXPOSURE:

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SKIN ABSORPTION: REPEATED EXPOSURE TO HIGH CONCENTRATIONS THROUGH ABSORPTION MAY CAUSE INJURY TO BONE MARROW AND BLOOD CELLS, KIDNEY, LIVER AND TESTES.

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SECTION VI - REACTIVITY DATA

STABILITY: THIS PRODUCT IS STABLE UNDER NORMAL STORAGE CONDITIONS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR UNDER NORMAL CONDITIONS.

HAZARDOUS DECOMPOSITION PRODUCTS: IF THERMAL DECOMPOSITION OCCURS IT MAY YIELD CARBON DIOXIDE AND / OR CARBON MONOXIDE.

CONDITIONS TO AVOID: NONE KNOWN

INCOMPATABILITY: NONE REASONALLY FORESEEABLE

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: EVACUATE ALL NON-ESSENTIAL PERSONNEL. REMOVE ALL SOURCES OF IGNITION. VENTILATE THE AREA. EQUIP EMPLOYEES WITH APPROPRIATE PROTECTION EQUIPMENT (SEE SECTION VIII.). DIKE AROUND SPILLED MATERIAL. COVER SPILL WITH INERT ABSORBENT MATERIAL AND SHOVEL WITH NON-SPARKING TOOLS INTO CONTAINER. REMOVE CONTAINERS TO A SAFE AREA AND SEAL.

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SECTION VIII - SAFE HANDLING AND USE INFORMATION

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PROTECTIVE GLOVES: BUTYL RUBBER

EYE PROTECTION: SAFETY GLASSES WITH SIDE SHIELDS.

OTHER PROTECTIVE EQUIPMENT: EYE BATH AND SAFETY SHOWER. TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING, BOOTS AND PROTECTIVE CREAM IF NECESSARY.

HYGENIC PRACTICES: WASH HANDS BEFORE EATING, SMOKING, BREAKS, OR USING RESTROOM.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: SEE SECTION X

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

DRUMS: PROTECT AGAINST PHYSICAL DAMAGE. OUTSIDE OR DETACHED STORAGE PREFERRED. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME. CLOSE CONTAINERS AFTER EACH USE.

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OTHER PRECAUTIONS: ALL EQUIPMENT SHOULD BE GROUNDED AND BONDED TO REDUCE STATIC ELECTRICITY HAZARD. USE NON-SPARKING TOOLS.

SECTION X - HMIS RATINGS

HEALTH: 2 FLAMMABILITY: 2 REACTIVITY: 0 PERSONAL PROTECTION: G

SECTION XI - ADDITIONAL PRODUCT INFORMATION

OBSERVE LABLE PRECAUTIONS: "THIS MATERIAL DOES NOT CONTAIN INTENTIONALLY ADDED INGREDIENTS WHICH ARE BASED ON COMPOUNDS OF ANTIMONY, ARSENIC, CADMIUM, LEAD, CHROMATE, MERCURY, SELENIUM OR WATER SOLUBLE BARIUM." THAT MAY EXCEED ALLOWABLE LIMITS ESTABLISHED BY CONSUMER PRODUCT SAFETY COMMISION.

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THE INFORMATION CONTAINED HEREIN IS, TO THE BEST OF OUR KNOWLEDGE AND BELIEF, ACCURATE. HOWEVER, SINCE THE CONDITIONS OF HANDLING AND USE ARE BEYOND OUR CONTROL, WE MAKE NO GUARANTEE OF RESULTS, AND ASSUME NO LIABILITY FOR DAMAGES INCURRED BY USE OF THIS MATERIAL. IT IS THE RESPONSIBILITY OF THE USER TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS.

Industrial Hygiene and Toxicology Data Sheet

Industrial Hygiene And Toxicology Division
Environmental Conservation And Toxicology Department

Form U-1957-A (8-78)

Section I

Trade Name and Synonyms: PETROLEUM DISTILLATE OB - 2	Emergency Phone Number: (309) 674-6144
Manufacturer's Name: COLEMAN OIL CORPORATION	Warning Statement: WARNING! COMBUSTIBLE PETROLEUM DISTILLATE. CAN CAUSE SKIN IRRITATION UPON PROLONGED OR REPEATED CONTACT. HARMFUL OR FATAL IF SWALLOWED AND/OR ASPIRATED INTO LUNGS.
Address: 75 SANGER P.O. 5098 PEORIA, IL. 61601	
Product Identification: KEYSTONE OB - 2	
CAS Number - - - Formula - - -	DOT Classification: Combustible Liquid, NA199
EPA Number - - -	

Section II - Important Components

Petroleum distillate

Permissible Exposure Concentration: Not determined

Section III - Health Effects Of Exposure

Eye

None expected

Primary eye irritation scores for similar material have ranged from 0.0 to 1.0/110 (rabbits).

Skin

Can cause skin irritation upon prolonged or repeated contact
Similar products have produced primary skin irritation scores ranging from 0.67 to 6.81/8.0 (rabbits)
Dermal LD_{50} for similar materials was greater than 2g/kg (rabbits)
See Section XI for additional hazard warning.

Inhalation

None expected under usual conditions of use

Inhalation LC50 for a similar material was greater than 10.27g/m^3 (rats)

Ingestion

Low viscosity product - harmful or fatal if swallowed and/or aspirated into lungs

Oral LD_{50} for similar materials was greater than 5g/kg (rats)

Section IV - Emergency And First Aid Procedures

Eye Contact

Flush with plenty of water

Skin Contact

Wash exposed skin with soap and water. Remove contaminated clothing, including shoes, and thoroughly clean and dry before reuse.

Inhalation

None required

Ingestion

If swallowed, do NOT induce vomiting. Get immediate medical attention.

Section V - Personal Protection Information

Eye	None required, however use of safety glasses is good industrial practice.
Skin	Wear protective clothing and gloves if prolonged or repeated contact is likely.
Respiratory	None required for usual conditions of use.
Ventilation (Type Required)	General area

Section VI - Fire Protection Information

Flash Point (Method)	120-165°F (TCC)	Autoignition Temperature	N/A
Flammable Limits (by Volume in Air)	Upper approx. 6.0%	Lower Approx. 1.3%	
Extinguishing Media	Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, halogenated agents, foam) and water fog. Water may be ineffective.		
Unusual Fire and Explosion Hazards	None		

Section VII - Physical Properties And Reactivity Data

Boiling Point (°F)	range 300-580°F	Vapor Pressure (mm Hg 20 °C)	N/A		
Melting Point (°F)	- - -	Vapor Density (Air = 1)	N/A	pH	Not applicable
Specific Gravity (Water = 1)	0.81-0.85	Solubility in Water	Negligible		
Viscosity	1.4-2.2 cs @ 100°F				
Appearance and Odor	Clear, bright liquid				
Hazardous Polymerization		Occurs	Does NOT Occur	X	
Products Formed When Subjected to High Temperature or Combustion	N/A				
Materials to Avoid	Strong oxidizers				

Section VIII - Storage and Environmental Protection

Storage Requirements	Store in a combustible liquids storage area						
Procedures In Case of Breakage or Leakage	Shut off all sources of ignition. Use water spray to disperse vapors. Contain on an absorbent material.						
Waste Disposal	Enclosed controlled incineration unless directed otherwise by applicable authori						
Biodegradability	☐ Yes	☐ No	☐ Unknown	Bioaccumulation	☐ Yes	☐ No	☐ Unknown

Section IX - Marketing And Use Regulated By (Specific Regulations)

☐ FDA - - -	☐ USDA - - -	☐ Other (Specify)

Section X - Comments

Label copy:

WARNING!
COMBUSTIBLE
PETROLEUM DISTILLATE
CAN CAUSE SKIN IRRITATION UPON PROLONGED OR REPEATED CONTACT
HARMFUL OR FATAL IF SWALLOWED AND/OR ASPIRATED INTO LUNGS

Keep away from heat and open flame. Use with adequate ventilation. Practice good personal hygiene. Avoid prolonged or repeated skin contact. Wear protective clothing and gloves if prolonged or repeated contact is likely. Remove contaminated clothing, including shoes, and thoroughly clean and dry before reuse.

Skin
In case of contact, wash exposed skin with soap and water.

Ingestion
If swallowed, do NOT induce vomiting. Get immediate medical attention.

N/A - Data not available

Information Supplied By	Signature	Title	Date
N. E. Richars	N.E. Richars	E.V.P.	Revised May 22, 19

Recommended Precautionary Statements

From skin-painting studies of petroleum distillates of similar composition and distillation range, it has been shown that these types of materials often possess weak carcinogenic activity in laboratory animals. Therefore, there may be a potential risk of skin cancer from prolonged or repeated skin contact with this product in the absence of good personal hygiene. This particular product has not been tested for carcinogenic activity, but we have chosen to be cautious in light of the findings with other distillate streams.

Occasional skin contact with this product is not expected to have serious effects but good personal hygiene should be practiced and repeated skin contact avoided. This product can also be expected to produce skin irritation upon prolonged or repeated skin contact. Personal hygiene measures taken to prevent skin irritation are expected to be adequate to prevent risk of skin cancer.

MATERIAL SAFETY DATA SHEET
(OSHA FORM 174)

IDENTITY: MILL SCALE

SECTION I

Manufacturer's Name:
Keystone Steel & Wire Co.

Address:
7000 SW Adams St.
Peoria, IL 61641

Emergency Telephone No.:
309-697-7020

Telephone No. For Information:
309-697-7020

Date Prepared: February, 1992

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components:	OSHA PEL	ACGIH TLV	%
Iron Iron oxide fume as Fe CAS No. 1309-37-1	10 mg/M3	5 mg/M3	Approx. 95%
Chromium CAS No. 7440-74-3	Metal: 1 mg/M3	0.5 mg/M3	Less than 0.5%
Manganese CAS No. 7439-96-5	Dust: 5 mg/M3 Ceiling Fume: 3 mg/M3-Ceiling	5 mg/M3 1 mg/M3-TWA 3 mg/M3-Ceiling	Approx. 3%
Copper CAS No. 7440-50-8	Dust & Mist: 1.0 mg/M3 Fume: 0.1 mg/M3	1.0 mg/M3 0.2 mg/M3	Approx. 1%

TWA = 8 Hr. Time Weighted Average

Percentages are representative of product and may vary depending on batch composition.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A
Vapor Pressure (mm Hg.): N/A
Vapor Density (AIR = 1): N/A
Specific Gravity: N/A
Melting Point: Approx. 2700°F
Evaporation Rate
(Butyl Acetate = 1): N/A

Solubility in Water: Not Soluble
Appearance and Odor: Solid, metallic grey or black. No Odor

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): N/A

Flammable Limits: N/A

Extinguishing Media: Use media suitable for extinguishing the supporting fire.

Special Fire Fighting Procedures: Firefighters should wear proper protective equipment and positive pressure NIOSH approved self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Steel products in solid state present no fire or explosion hazard. Spraying water on molten metal may cause an explosion (for example in a foundry).

==========

SECTION V - REACTIVITY DATA

Stability: Unstable _____ Conditions To Avoid: N/A
Stable _____

Incompatibility (Materials To Avoid): Strong acids

Hazardous Decomposition or By-products: Will react with strong acids to liberate hydrogen.

Hazardous Polymenzation: May Occur: Conditions to Avoid: N/A
Will Not Occur: XX

SECTION VI - HEALTH HAZARD DATA

ROUTE(S) OF ENTRY:	Inhalation?	Skin?	Ingestion?
	XX - dust or fume		

Health Hazards (Acute and Chronic): Steel products under normal conditions do not present an inhalation, ingestion or contact health hazard. However, operation which generates dust or fume may present a hazard, for example: welding, grinding, cutting, etc.

CARCINOGENICITY:	NTP?	IARC Monographs?	OSHA Regulated?
	Chromium Only Yes	Yes	No

Signs and Symptoms of Exposure: Acute:
High levels of metal fumes may cause respiratory irritation. High levels of zinc, copper and manganese fumes may cause metal fume fever with symptoms similar to flu: chills, fever, headache, cough, diarrhea, vomiting, etc.
Chronic:
Iron - Repeated excessive exposures can cause non-symptomatic (benign) x-ray changes which may be misdiagnosed as fibrosis (siderosis).
Chromium - Excessive exposure can cause respiratory system damage. Some chromium compounds have been linked with an increased incidence of respiratory cancer.
Manganese - With long term very high exposure to fume or dust, manganese can affect the central nervous system with symptoms of headache, weakness insomnia or mental confusion.
Copper - Respiratory irritation, metallic taste.

Medical Conditions Generally Aggravated by Exposure: Chronic respiratory disease may be aggravated by high fume or dust levels. Persons with Wilson's disease should avoid copper exposure.

Emergency and First Aid Procedures: Inhalation of fume or dust - Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Seek medical attention. Treat metal fume fever with bed rest and a fever and pain by reducing medication.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING USE

Steps to Be Taken in Case Material Is Released or Spilled: Not applicable to steel in the solid state.

Waste Disposal Method: Dispose in accordance with all applicable federal, state & local environmental regulations. Normally can be reclaimed or recycled.

Precautions to Be Taken in Handling and Storing: Avoid breathing metal fumes &/or dusts.

Other Precautions: Operations with the potential for generating high concentrations of airborne particles should be evaluated and controlled as necessary.

==========

SECTION VIII - CONTROL MEASURES

Respiratory Protection (Specify Type): If exposure may or does exceed the PEL's, NIOSH approved dust & fume cartridge respirators or supplied air

Ventilation: Local Exhaust - Should be provided when welding, cutting, grinding, etc.

Protective Gloves: As needed for thermal protection

Eye Protection: Recommended as needed to protect against particles or radiation from welding-type operations

Other Protective Clothing or Equipment: Same as eye protection.

Work/Hygienic Practices: Use good personal hygiene to avoid ingestion or inhalation through food or smoking.

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The information herein is provided in good faith and is believed to be correct and complete as of the date issued. This document is intended as a guide to appropriate handling precautions of the material. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application.

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
Chromium	7440-74-3	Less than 0.5%
Manganese	7439-96-5	Approx. 3%
Copper	7440-50-8	Approx. 1%

Percentages are representative of product and may vary depending on batch composition.

==========

The information herein is provided in good faith and is believed to be correct and complete as of the date issued. This document is intended as a guide to appropriate handling precautions of the material. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application.

No representations or warranties either expressed or implied of merchantibility, fitness for a particular purpose or any other nature are made with respect to either the information set forth herein or to the product to which the information refers.

MATERIAL SAFETY DATA SHEET
(OSHA FORM 174)

IDENTITY: WASTE 1,1,1 TRICHLOROETHANE
(METHYL CHLOROFORM)

==========

SECTION I

Manufacturer's Name:
Keystone Steel & Wire Co.

Address:
7000 SW Adams St.
Peoria, IL 61641

Emergency Telephone No.:
309-697-7020

Telephone No. For Information:
309-697-7020

Date Prepared: February, 1992

==========

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components:	OSHA PEL	ACGIH TLV	%
1,1,1 Trichloroethane (Methyl chloroform) CAS No. 71-55-6	350 ppm 450 ppm-STEL	350 ppm 450 ppm-STEL	> 95%
Diethylene ether (1,4 dioxane) CAS No. 123-91-1	25 ppm	25 ppm	< 3%

STEL = Short Term Exposure Limit

Percentages are representative of product and may vary depending on batch composition.

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SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 165°F (74°C)
Vapor Pressure (mm Hg.): 100mm @ 20°C
Vapor Density (AIR = 1): 4.5

Specific Gravity: 1.32
Melting Point: N/A
Evaporation Rate
(Butyl Acetate = 1): Not Found

Solubility in Water: 0.07 g/100g water @ 25°C
Appearance and Odor: Colorless liquid, mild solvent odor
Odor may be irritating at high levels

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): None by TOC, TCC, COC
Flammable Limits: at 25°C LEL: 7.5% UEL: 12.5%
Extinguishing Media: Water Fog

Special Fire Fighting Procedures: Wear NIOSH approved positive pressure, self-contained breathing apparatus

Unusual Fire and Explosion Hazards: Vapors may develop a flammable atmosphere in confined or poorly ventilated spaces.

==========

SECTION V - REACTIVITY DATA

Stability: Unstable _____ Stable _____
Conditions To Avoid: Avoid Open Flames, welding arcs or other High temperature sources which may cause thermal decomposition.

Incompatibility (Materials To Avoid): Aluminum, zinc, amines, water, strong caustics, strong oxidizes, magnesium, sodium, potassium.
Incompatibility: Prolonged contact with water may cause corrosion and diminish stabilizer levels. Contact with aluminum or zinc powder or prolonged storage in aluminum may cause acid gas to form. If confined in an aerosol can or pump the gas pressure may rupture the container.

Hazardous Decomposition or By-products: Hydrogen chloride & very small amounts of phosgene & chlorine fumes are possible, thermal decomposition products

Hazardous Polymenzation:	May Occur	Conditions To Avoid: N/A
	May Not Occur XX	

==========

SECTION VI - HEALTH HAZARD DATA

ROUTE(S) OF ENTRY:	Inhalation?	Skin?	Ingestion?
	XX	XX	XX

Health Hazards (Acute and Chronic) & Signs & Symptoms:

EYE: May cause pain. May cause slight transient (temporary) irritation with slight transient corneal injury. Vapors may irritate eyes.

SKIN CONTACT: Prolonged or repeated exposure may cause skin irritation. Repeated contact may cause drying or flaking of skin.

SKIN ABSORPTION: A single prolonged skin exposure is not likely to result in harmful amounts. The LD50 for rabbits is about 15,000 mg/kg.

INGESTION: Single dose oral toxicity is low. The LD50 for rats is >10,000 mg/kg. If aspirated (liquid enters the lung), may be rapidly absorbed through the lungs and result in injury to other body systems.

INHALATION: Minimal anesthetic or narcotic effects may be seen in the range of 500-1000 ppm trichloroethane. Progressively higher levels over 1000 ppm may cause dizziness, drunkenness; concentrations as low as 10,000 ppm can cause unconsciousness and death. These high levels may also cause cardiac arrhythmias (irregular heartbeats). In confined or poorly ventilated area, vapors which readily accumulate can cause unconsciousness and death.

SYSTEMIC & OTHER EFFECTS: Based on available data, repeated exposures are not anticipated to cause any significant adverse effects. The formula containing 1,1,1-trichloroethane, 1,4-dioxane, 1,2-butylene oxide, and nitromethane was tested in long-term animal studies and did not cause cancer. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus. In animal studies, has been shown not to interfere with reproduction. Results of in vitro (test tube) mutagenicity tests have been negative. Results of mutagenicity tests in animals have been negative.

CARCINOGENICITY:	NTP?	IARC Monographs?	OSHA Regulated?
1,1,1 trichloroethane	No	No	No
1,4 dioxane	No	Yes	No

Medical Conditions Generally Aggravated by Exposure:
The effects of alcohol ingestion and some chlorinated hydrocarbons may be cumulative.

Emergency First Aid Procedures:

EYES: Irrigate immediately with water for at least 5 minutes.

SKIN: Wash off in flowing water or shower.

INGESTION: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

INHALATION: Remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. If breathing is difficult, give oxygen. Call a physician.

NOTE TO PHYSICIAN: Because rapid absorption may occur throughout lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esphageal control. Danger from lung aspiration must be weighted against toxicity when considering emptying the stomach. Exposure my increase "myocardial irritability). Do not administer sympathomimetic drugs unless absolutely necessary. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

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SECTION VII - PRECAUTIONS FOR SAFE HANDLING USE

Steps to Be Taken in Case Material Is Released or Spilled:

Small Leaks: Mop up, wipe up, or soak up immediately. Remove to out-of-doors.

Large Spills: Evacuate area. Contain liquid transfer to closed metal containers. Keep out of water supplies.

Waste Disposal Method: When disposing of unused contents, the preferred options are to send to licensed reclaimer, or to permitted incinerators. Any disposal practice must be in compliance with federal, state, and local laws and regulations. Do not dump into sewers, on the ground, or into any body of water. Empty containers must be disposed of in accordance with all applicable federal, state and local regulations. DO NOT CUT OR WELD CONTAINER due to explosion hazard.

Precautions to Be Taken in Handling and Storing: Use only with adequate ventilation. Store in a cool dry place Do not store in zinc or aluminum containers.

Other Precautions: Concentrated vapor is heavier than air and may collect in low areas.

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SECTION VIII - CONTROL MEASURES

Respiratory Protection (Specify Type): If concentrations are above the PEL, use supplied air (NIOSH Recommendation)

Consult respirator manufacturer for assistance in choosing appropriate respirator. If respirators are used employers must have a respirator program which complies with OSHA 1910.134.

Ventilation: Local Exhaust - Recommended

Protective Gloves: Use to avoid repeated and prolonged contact.
Eye Protection: Use safety glasses. If contact with liquid is likely, use goggles.

Other Protective Clothing or Equipment: Use impervious clothing to prevent prolonged or repeated contact.

Work/Hygienic Practices: Use safety glasses or goggles to avoid eye contact. Have eye wash available if splashing is probable.

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SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
1,1,1-Trichloroethane (Methyl Chloroform)	000071-55-6	96.5%
1,4 Dioxane	000123-91-1	2.5%

Percentages are representative of product and may vary depending on batch composition.

The information herein is provided in good faith and is believed to be correct and complete as of the date issued. This document is intended as a guide to appropriate handling precautions of the material. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application.

No representations or warranties either expressed or implied of merchantability, fitness for a particular purpose or any other nature are made with respect to either the information set forth herein or to the product to which the information refers.

coal tar
PRODUCT IDENTIFICATION NUMBER (PIN): 2810
CLASSIFICATION: 6.1 - Poisonous substance; 9.2 - Substance hazardous to the environment
SPECIAL PROVISIONS: See regulations
IMO CLASSIFICATION: 6.1
ICAO CLASSIFICATION: 6.1
PACKING GROUP: I or II or III

*** SELECTED BIBLIOGRAPHY ***

BIBLIOGRAPHY :

(1) IARC monographs on the evaluation of the carcinogenic risk of chemicals to humans Vol 35, Polynuclear aromatic compounds, part 4, bitumens, coal-tars and derived products, shale-oils and soots IARC, 1984. p 83-159
(2) Coal tar pitch volatiles NIOSH Method 5023. NIOSH Manual of Analytical Methods 3rd ed Vol 1 (1985)
(3) Criteria for recommended standard : Occupational Exposure to Coal Tar Products Cincinnati, OH : U.S Department of Health, Education, and Welfare, National Institute for Occupational Safety and Health, September 1977
(4) Soots, tars and oils (group 1) In: IARC Mongraphs on the Evaluation Of The Carcinogenic Risk of Chemicals to Man Suppl : 4. Lyon : International Agency for Research on Cancer, October 1982. p 227
(5) Historical review of cancer in workers exposed to polycyclic aromatic hydrocarbons and heterocyclic compounds and their role in other environmental situations. In: IARC Mongraphs on the Evaluation of the Carcinogenic Risk of Chemicals to Man Vol : 3. Lyon : International Agency for Research on Cancer, 1972. p 22-42
(6) Creosote inorganic arsenicals pentachlorophenol (position document no. 2/3) Washington, DC : United States Environmental Protection Agency, Office of Pesticides and Toxic Substances, January 1981
(7) Todd A.S.; Timbie, C.Y Industrial Hygiene Surveys of Occupational Exposure to Wood Preservative Chemicals Cincinnati, OH : U.S Department of Health, Education, and Welfare, National Institute for Occupational Safety and Health, February 1983
(8) IARC Monographs on the evaluation of the carcinogenic risks to humans. Supplement 7. IARC, 1987. p 61, 177-178

* Information on chemicals contained in the CHEMINFO Database is drawn from a number of publicly available sources. The sources used are available on request. *

*** IDENTIFICATION ***

RECORD NUMBER : 157
CCOHS CHEMICAL NAME : 1,1,1-Trichloroethane
SYNONYM(S) :
* Methyl chloroform

* Trichloro-1,1,1 ethane
* Trichloroethane
* Methyltrichloromethane

TRADE NAME(S) : Chlorothene NU
Chlorothene VG
Solvent 111

CAS REGISTRY NUMBER : 71-55-6
PIN - UN/NA NUMBER(S) : 2831
RTECS NUMBER(S) : KJ2975000
CHEMICAL FAMILY : Halogenated hydrocarbon / Chlorinated alkane

MOLECULAR FORMULA : C2-H3-Cl3
STRUCTURAL FORMULA : CH3-CCl3
LAST REVISION DATE : 1989-09-22

*** DESCRIPTION ***

APPEARANCE AND ODOUR : Colourless, volatile liquid with a sweetish, chloroform-like odour.

ODOUR THRESHOLD : 44-100 ppm

WARNING PROPERTIES (ODOUR AND IRRITATION) :
Poor - Although odour can normally be detected before TLV is reached, perception of odour may decline over several hours of exposure (olfactory fatigue).

COMPOSITION/PURITY :
Commercial products normally contain 3-7% stabilizers such as dioxane, isobutyl alcohol, butylene oxide and nitromethane.

USES AND OCCURRENCES :
Solvent for metal degreasing, natural and synthetic resins, oils, waxes, tar and alkaloids; for adhesives and coatings; for textile-dyeing operations; used in dry-cleaning operations; cleaning electrical machinery; coolant and lubricant in metal-cutting oils; and as extraction solvent and chemical intermediate in the chemical industry.

*** HUMAN HEALTH HAZARD DATA ***
* EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE *

INHALATION :
High levels (above 900 ppm) of 1,1,1-trichloroethane can depress the nervous system and cause headache, dizziness and fatigue Impaired performance of behavioural tests was also reported at these concentrations. The results of the tests came back to normal within a few minutes following cessation of exposure. At very high levels (greater than 5000 ppm), 1,1,1-trichloroethane can cause unconsciousness, respiratory depression and death Several deaths resulting from exposure to high levels of 1,1,1-trichloroethane in confined spaces have been reported.

EYE CONTACT :
Exposure to 500 ppm of 1,1,1-trichloroethane has caused mild eye irritation

Accidental liquid splashes caused temporary, surface irritation of the eyes.

SKIN CONTACT :
1,1,1-Trichloroethane may cause mild irritation and temporary drying of the skin.

INGESTION :
1,1,1-Trichloroethane can cause severe gastrointestinal irritation characterized by vomiting and diarrhea.

* EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE *

HEALTH EFFECTS :
Very little information available Volunteers exposed to 500 ppm 7hrs/day for 5 days felt tired and had slight problems with balance Prolonged exposure has caused skin burns No other effects are reported following long-term exposure to 1,1,1-trichloroethane.

CARCINOGENICITY :
No human data Animal studies are inconclusive (2,6).

TERATOGENICITY AND EMBRYOTOXICITY :
No human data

MUTAGENICITY :
No human data Animal and cell studies indicate that 1,1,1-trichloroethane is probably not mutagenic.

POTENTIAL FOR ACCUMULATION :
1,1,1-Trichloroethane is eliminated mainly in the exhaled air and in the urine (as trichloroethanol and trichloroacetic acid) It can be stored in the fat tissues temporarily The breakdown products were detected in the urine up to 12 days after exposure had stopped.

*** FIRST AID ***

INHALATION :
If the victim is unconscious or semiconscious, take proper precautions to ensure your own safety before attempting rescue; e.g., wear appropriate protective equipment, use the "buddy" system Remove source of contamination or move victim to fresh air. If breathing has stopped, trained personnel should begin artificial respiration or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Obtain medical attention immediately.

EYE CONTACT :
If irritation occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes, by the clock, holding the eyelid(s) open. If irritation persists, obtain medical attention immediately.

SKIN CONTACT :
Remove contaminated clothing, shoes and leather goods (e.g watchbands, belts) Wash gently and thoroughly with water and non-abrasive soap. If irritation persists, obtain medical attention immediately. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

INGESTION :
Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING Have victim drink 240 to 300 mL (8 to 10 oz.) of water If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration Rinse mouth and repeat administration of water. If breathing has stopped, trained personnel should begin artificial respiration or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Obtain medical attention immediately.

FIRST AID COMMENTS :
Provide general supportive measures (comfort, warmth, rest). Consult a

physician and/or the nearest Poison Control Centre for all exposures except minor instances of inhalation or skin contact. All first aid procedures should be periodically reviewed by a physician familiar with the material and its conditions of use in the workplace.

*** ANIMAL TOXICITY DATA ***

ANIMAL TOXICITY DATA :
LD50 (oral, rat): 10 300 mg/kg LD50 (skin, rabbit): about 15 000 mg/kg (Dow) LC50 (rat): 24 000 ppm/1-hr exposure; 18 000 ppm/3-hr exposure; 18 400 ppm/4-hr exposure; 14 000 ppm/7-hr exposure Rats exposed to 12 000 ppm of 1,1,1-trichloroethane for 7 hours showed slight liver damage. CARCINOGENICITY: A feeding study in rats and mice gave inconclusive results; a few liver tumours were seen in treated mice, but survival of treated animals was low A limited inhalation study in rats was reportedly negative The IARC considered the available information inadequate for evaluation (2). REPRODUCTIVE EFFECTS: Birth defects were not observed in the offspring of rats or mice treated by inhalation or ingestion In one inhalation study in rats at high concentrations (2100 ppm, 6 h/day, before and during gestation), there was retarded development indicative of fetotoxicity; maternal toxicity was not observed (5). MUTAGENICITY: Some limited positive results and many negative results have been reported from tests in bacteria Tests in yeast and mammalian cells have been negative Micronucleus tests and a dominant lethal test in mice were negative It appears that 1,1,1-trichloroethane is probably not mutagenic (5).

*** OCCUPATIONAL EXPOSURE LIMITS ***
* THRESHOLD LIMIT VALUES (TLVS) / AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH) / 1987-88 *

TIME-WEIGHTED AVERAGE (TLV-TWA) : 350 ppm (1900 mg/m3)
SHORT-TERM EXP. LIMIT (TLV-STEL) :
450 ppm (2450 mg/m3)
EXPOSURE LIMIT COMMENTS :
BIOLOGICAL EXPOSURE INDICES (BEIs): The ACGIH has adopted a BEI for this chemical BEIs provide an indication of worker exposure by measuring the chemical or its breakdown products in the body or by measuring biochemical changes resulting from exposure to the chemical Consult the BEI documentation for further information. NOTE: In many Canadian jurisdictions, exposure limits are similar to the ACGIH TLVs Since the manner in which exposure limits are established, interpreted and implemented can vary, obtain detailed information from the appropriate government agency in each jurisdiction.

*** SAMPLING AND ANALYSIS ***

SAMPLING & ANALYSIS :
Use appropriate instrumentation and sampling strategy (location, timing, duration, frequency and number of samples) Interpretation of the sampling results is related to these variables and the analytical method. COLORIMETRIC-INDICATING (DETECTOR) TUBES: Commercially available NIOSH METHOD(S): S-328 - NIOSH Manual of Analytical Methods 2nd edition. Vol 3; 127 - NIOSH Manual of Analytical Methods 2nd edition Vol 1

*** EXPOSURE CONTROL ***

* Note: Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Use this general information to help develop specific control measures. Ensure that control systems are

properly designed and maintained. Comply with occupational, environmental, fire, and other applicable regulations. *

* ENGINEERING CONTROLS *

ENGINEERING CONTROLS :
Engineering control methods to reduce hazardous exposures are preferred. Methods include mechanical ventilation (dilution and local exhaust), process or personnel enclosure, control of process conditions and process modification (e.g substitution of a less hazardous material). Administrative controls and personal protective equipment may also be required. When there is large-scale use of this material, local exhaust ventilation with or without process enclosure may be necessary Supply sufficient replacement air to make up for air removed by exhaust systems.

* PERSONAL PROTECTIVE EQUIPMENT *

RESPIRATORY PROTECTION :
If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection Have appropriate equipment available for use in emergencies such as spills or fire. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection Refer to the CSA Standard Z94.4-M1982, "Selection, Care, and Use of Respirators," available from the Canadian Standards Association, Rexdale, Ontario, M9W 1R3.

RESPIRATORY PROTECTION GUIDELINES :
NIOSH RECOMMENDATIONS FOR 1,1,1-TRICHLOROETHANE VAPOUR CONCENTRATIONS: UP TO 1000 ppm: Any supplied-air respirator; or any self-contained breathing apparatus. EMERGENCY OR PLANNED ENTRY IN UNKNOWN CONCENTRATION OF IDLH CONDITIONS: Any self-contained breathing apparatus with full facepiece; or any supplied-air respirator with a full facepiece and operated in pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. ESCAPE: Any air-purifying full facepiece respirator (gas mask) with a chin-style or front- or back-mounted organic vapour canister; or any appropriate escape-type self-contained breathing apparatus. IDLH (immediately Dangerous to Life or Health): For the purpose of respirator selection, IDLH concentration is defined as the maximum concentration from which one could escape within 30 minutes without any escape-impairing symptoms or irreversible health effects. Recommendations apply only to NIOSH/MSHA approved respirators.

EYE/FACE PROTECTION :
No specific requirement, but it is good practice to wear chemical safety goggles.

SKIN PROTECTION :
No specific requirement, but it is good practice to prevent skin contact.

RESISTANCE OF MATERIALS FOR PROTECTIVE CLOTHING :
VERY GOOD: Viton, PVA FAIR/POOR: Butyl rubber, natural rubber, neoprene, nitrile rubber, polyethylene, PVC, chlorinated polyethylene. NOTE: Resistance of specific materials can vary from product to product. Evaluate resistance under conditions of use and maintain clothing carefully.

PERSONAL PROTECTION COMMENTS :
Remove contaminated clothing promptly Keep contaminated clothing in closed containers Discard or launder before rewearing Inform laundry personnel of contaminant's hazards Maintain good housekeeping.

*** STORAGE AND HANDLING ***

STORAGE CONDITIONS :

Store in tightly-closed, approved solvent containers, in a cool, well-ventilated area Do not store in aluminum containers. Store away from incompatible materials such as oxidizing materials, strong bases Storage tanks should be above ground and surrounded with dikes capable of holding entire contents. Limit quantity of material in storage Restrict access to storage area. Post warning signs when appropriate Keep storage area separate from populated work areas Inspect periodically for deficiencies such as damage or leaks.

HANDLING :

Do not use near welding operations, flames or hot surfaces Avoid generating mist Label containers Keep containers closed when not in use Empty containers may contain residues which are potentially hazardous. Vapours are heavier than air and may accumulate in tanks, pits and other confined spaces Test these areas for presence of trichloroethane before entry Wear appropriate respiratory protective equipment Have an observer present at all times who can render assistance. Do not use aluminum or its alloys in any handling equipment such as pumps, fittings or containers.

*** SPILL AND LEAK PROCEDURES ***

PRECAUTIONS :

Restrict access to area until completion of clean-up Ensure clean-up is conducted by trained personnel only Wear adequate personal protective equipment Ventilate area. Notify government occupational and environmental authorities.

CLEANUP :

Do not touch spilled material Prevent material from entering sewers or confined spaces Stop or reduce leak if safe to do so Contain spill with earth, sand or absorbent material which does not react with spilled material Remove liquid by pumps or vacuum equipment Place in suitable, covered, labelled containers. Small spills: Soak up spill with absorbent material which does not react with spilled chemical Put material in suitable, covered, labelled containers Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product. Large spills: Contact fire and emergency services and supplier for advice.

*** DISPOSAL ***

DISPOSAL :

Review federal, provincial and local government requirements prior to disposal. Disposal by controlled incineration in an approved facility may be acceptable.

*** FIRE AND EXPLOSION ***

FLASH POINT	: None by conventional test methods; essentially non-flammable at room temperature Can burn at high temperatures in the presence of a source of ignition.
LOWER EXPLOSIVE LIMIT (LEL)	: 7% (70 000 ppm) in presence of continuous ignition source only
UPPER EXPLOSIVE LIMIT (UEL)	: 16% (160 000 ppm) in presence of continuous ignition source only

AUTOIGNITION TEMPERATURE :

500 deg C (932 deg F)

EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT :

Probably not sensitive Stable material.

FIRE EXTINGUISHING AGENTS :

Dry chemical, foam, carbon dioxide and water spray may be used on fires

involving this material.
FIRE FIGHTING PROCEDURES :
Use water spray to keep fire-exposed containers cool.
COMBUSTION (THERMAL DECOMPOSTITION) PRODUCTS :
Hydrogen chloride (HCl) and trace amounts of phosgene at 500 deg C (932 deg F)

* NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX *

HEALTH	: 3 - Extremely hazardous to health
FIRE	: 1 - Must be preheated before ignition can occur.
REACTIVITY	: 1 - Normally stable but can become unstable at elevated temperatures and pressures or may react non violently with water.

*** CHEMICAL REACTIVITY ***

STABILITY :
Pure 1,1,1-trichloroethane is moderately stable - it reacts slowly with water to give off hydrochloric acid Can be decomposed by ultraviolet light (sunlight).
INCOMPATIBILITY - MATERIALS TO AVOID :
ALUMINUM OR ITS ALLOYS - can react violently. POTASSIUM METAL AND ITS ALLOYS - mixtures with 1,1,1-trichloroethane can explode on light impact. STRONG BASES (e.g sodium hydroxide) - can react violently. STRONG OXIDIZING AGENTS - can react violently. WATER - slow reaction yields hydrogen chloride
HAZARDOUS DECOMPOSITION PRODUCTS : Hydrogen chloride
HAZARDOUS POLYMERIZATION : Does not occur.
CORROSIVITY TO METALS :
Pure 1,1,1-trichloroethane readily corrodes aluminum and aluminum alloys. Commercial products contain inhibitors to prevent corrosion.

*** PHYSICAL PROPERTIES ***

MOLECULAR WEIGHT : 133.405
CONVERSION FACTOR :
1 ppm = 5.45 mg/m3; 1 mg/m3 = 0.184 ppm at 25 deg C
MELTING POINT :
-30.4 deg C (-23 deg F)
BOILING POINT : 74 deg C (165 deg F)
RELATIVE DENSITY (SPECIFIC GRAVITY) :
1.338 (water = 1)
SOLUBILITY IN WATER :
Slightly soluble (4.4 g/L at 20 deg C).
SOLUBILITY IN OTHER LIQUIDS :
Soluble in acetone, benzene, methanol, carbon tetrachloride, ether, chloroform.

VAPOUR DENSITY	: 4.55 (air = 1)
VAPOUR PRESSURE	: 127 mm Hg at 25 deg C
SATURATION VAPOUR CONCENTRATION	: 16.7% (167 000 ppm) at 25 deg C
EVAPORATION RATE	: 12.8 (n-butyl acetate = 1); 1 (carbon tetrachloride = 1)

COEFFICIENT OF OIL/WATER (PARTITION COEFFICIENT), P :
Log P(oct) = 2.49

*** WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) CLASSIFICATION ***

WHMIS CLASSIFICATION, PROPOSED :
Poisonous and infectious material - Immediate and serious effects - Toxic
WHMIS HEALTH EFFECTS INDEX :
TDG class 6.1 group III - toxic - immediate
WHMIS INGREDIENT DISCLOSURE LIST : Confirmed B; Included on the Ingredient Disclosure List for disclosure at 0.1% or greater.

* DETAILED CLASSIFICATION ACCORDING TO CRITERIA *

WHMIS INFORMATION :
CLASS A - COMPRESSED GAS: Does not meet criteria.
CLASS B - FLAMMABLE & COMBUSTIBLE MATERIAL: Does not meet criteria.
CLASS C - OXIDIZING MATERIAL: Does not meet criteria.
CLASS D - POISONOUS AND INFECTIOUS MATERIAL DIVISION 1 - IMMEDIATE AND SERIOUS TOXIC EFFECTS: Meets criteria for "Toxic material"; TDG class 6.1, packing group III.
ACUTE LETHALITY: Does not meet criteria.
CLASS D - POISONOUS AND INFECTIOUS MATERIAL DIVISION 2 - OTHER TOXIC EFFECTS: Does not meet criteria See detailed evaluation below.
CHRONIC TOXIC EFFECTS: Insufficient data
CARCINOGENICITY: Does not meet criteria; not in reference lists.
TERATOGENICITY AND EMBRYOTOXICITY: Insufficient data; no conclusive animal data and no human studies.
REPRODUCTIVE TOXICITY: Insufficient information
MUTAGENICITY: Does not meet criteria.
RESPIRATORY TRACT SENSITIZATION: Does not meet criteria; not reported as human respiratory sensitizer.
SKIN SENSITIZATION: Does not meet criteria.
SKIN IRRITATION: Does not meet criteria.
EYE IRRITATION: Does not meet criteria.
CLASS E - CORROSIVE MATERIAL: Insufficient data Pure 1,1,1-trichloroethane can corrode aluminum, but commercial products (inhibited) are not corrosive.
CLASS F - DANGEROUSLY REACTIVE MATERIAL: Does not meet criteria.

*** TRANSPORTATION OF DANGEROUS GOODS (TDG) SHIPPING INFO ***
* (Source: Transport Canada, Transportation of Dangerous Goods Regulations) *

TDG INFORMATION : DESCRIPTION AND SHIPPING NAME:
1,1,1-Trichloroethane (R140a)
PRODUCT IDENTIFICATION NUMBER (PIN): 2831
CLASSIFICATION: 6.1 - Poisonous substance
SPECIAL PROVISIONS: ---
IMO CLASSIFICATION: 6.1
ICAO CLASSIFICATION: 6.1
PACKING GROUP: III

*** SELECTED BIBLIOGRAPHY ***

BIBLIOGRAPHY :
(1) Documentation of the threshold limit values and biological exposure indices 5th ed ACGIH, 1986. p 382-383
(2) IARC monographs on the evaluation of the carcinogenic risk of chemicals to humans Vol 20. IARC, 1979. p 515-531
(3) NIOSH pocket guide to chemical hazards NIOSH, Sept 1985. p. 160-161
(4) The Sigma-Aldrich library of chemical safety data Sigma-Aldrich Corporation, 1985. p 1738

(5) 1,1,1-Trichloroethane (Toxicity review 9) Health and Safety Executive, 1984.
(6) Organo-chlorine solvents : health risks to workers Commission of the European Communities, 1986. p 55-71

* Information on chemicals contained in the CHEMINFO Database is drawn from a number of publicly available sources. The sources used are available on request. *

* *
* C H E M I N F O *
* *
* Canadian Centre for Occupational Health and Safety *
* *

*** IDENTIFICATION ***

RECORD NUMBER : 81
CCOHS CHEMICAL NAME : Tetrachloroethylene
SYNONYM(S) :
* Ethylene tetrachloride
* Perc
* Perchlorethylene
* Perchloroethylene
* Perk
* Tetrachlorethylene
TRADE NAME(S) : Dowper
Perclene
CAS REGISTRY NUMBER : 127-18-4
PIN - UN/NA NUMBER(S) : 1897
RTECS NUMBER(S) : KX3850000
CHEMICAL FAMILY : Chlorinated hydrocarbon / halogenated alkene
MOLECULAR FORMULA : C2-C14
STRUCTURAL FORMULA : Cl2C=CCl2
LAST REVISION DATE : 1989-09-22

*** DESCRIPTION ***

APPEARANCE AND ODOUR : Colourless liquid with mildly sweet odour.
ODOUR THRESHOLD : 5 ppm, 50 ppm (recognition)
WARNING PROPERTIES (ODOUR AND IRRITATION) :
NOT RELIABLE - Odour may not persist with continued exposure Eye irritation threshold (100-200 ppm) exceeds the TLV.
COMPOSITION/PURITY :
Normally contains a stabilizer.
USES AND OCCURRENCES :
Dry cleaning agent; degreasing solvent; heat exchange fluid; scouring, sizing and desizing agent in textile manufacture.

*** HUMAN HEALTH HAZARD DATA ***
* EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE *

INHALATION :
Most common route of exposure Irritation to the eyes, nose and throat at 200-500 ppm Injury to liver and kidney and central nervous system depression at 1,000-2,000 ppm Symptoms include nausea, headache, loss of

appetite, confusion, dizziness and unconsciousness Deaths reported due to massive accidental overexposure.

EYE CONTACT :

At high vapour concentrations, mild irritation (uncomfortable) Splashes may cause pain, burning, and watering, but permanent injury is unlikely.

SKIN CONTACT :

Some absorption through the skin, although not thought to be significant. Prolonged exposure can result in reddening and blistering (burns).

INGESTION :

Symptoms of exhilaration and drunkenness were experienced when 2.8 and 4 mL (approx 4.2 and 6 g) were ingested for a hookworm infestation No changes in liver function tests were seen with dosages of 1-8 mL (1.5-12 g).

* EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE *

HEALTH EFFECTS :

In a few cases, chronic effects on the nervous system have been reported after prolonged overexposure Symptoms included confusion, impaired memory, trembling in the arms and legs, impaired vision, numbness in the fingers In a few cases, but not all, liver injury was associated with chronic exposure. In one study, long-term exposure to tetrachloroethylene (9-38 ppm) in drycleaning shops did not have any detectable adverse effect on the central nervous system, liver or kidneys. SKIN: Frequent exposures may result in irritation, drying, flaking of the skin and dermatitis.

CARCINOGENICITY :

Inconclusive results were obtained in two limited studies of workers exposed to a number of chlorinated hydrocarbons Both studies indicated that there was no increase in liver cancer, but increased rates of lung, cervical and skin cancer were reported There is limited evidence of carcinogenicity in animal tests.

TERATOGENICITY AND EMBRYOTOXICITY :

In one case, tetrachloroethylene was detected in human breast milk after brief exposures Nursing infant developed jaundice and enlarged liver which quickly disappeared after discontinuing breast feeding No other human data available.

REPRODUCTIVE TOXICITY :

Insufficient information

TOXICOLOGICAL SYNERGISTIC MATERIALS :

Insufficient information

MUTAGENICITY :

No mutagenic effects have been detected in blood cells of exposed workers nor in other short-term tests.

POTENTIAL FOR ACCUMULATION :

Can accumualte over period of days - long biological half-life (about 6 days) Accumulates in fatty tissue Most tetrachloroethylene is eliminated via the lungs in exhaled air There is some metabolism to trichloracetic acid, which is excreted in the urine.

*** FIRST AID ***

INHALATION :

Take precautions to ensure your own safety before attempting rescue, e.g. wear appropriate protective equipment, use the "buddy" system Remove source of contamination or move victim to fresh air If breathing has stopped, properly trained personnel should begin artificial respiration or cardiopulmonary resuscitation (CPR) immediately Obtain medical attention immediately.

EYE CONTACT :

Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes, by the clock, holding the eyelid(s) open Obtain medical advice immediately.

SKIN CONTACT :

Remove contaminated clothing, shoes and leather goods (e.g watchbands, belts) Wash gently and thoroughly with water and non-abrasive soap If irritation persists, obtain medical advice immediately Completely decontaminate clothing, shoes and leather goods before re-use or discard.

INGESTION :

Never give anything by mouth if victim is rapidly losing consciousness or is unconsciousness or convulsing DO NOT INDUCE VOMITING Have victim drink 240 to 300 ml (8 to 10 ozs.) of water to dilute material in stomach. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration Repeat administration of water If breathing has stopped, trained

personnel should begin artificial respiration or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Obtain medical attention immediately.

FIRST AID COMMENTS :

Provide general supportive measures (comfort, warmth, rest) Consult a physician and/or the nearest Poison Control Centre for all exposures except minor instances of inhalation or skin contact All first aid procedures should be periodically reviewed by a physician familiar with the material and its condition of use in the workplace.

*** ANIMAL TOXICITY DATA ***

ANIMAL TOXICITY DATA :

LD50 (oral, rat): 2,600 mg/kg LD50 (oral, mouse): 8,850 mg/kg LC50 (inhalation, rat): 5,040 ppm; 8-hour exposure LC50 (inhalation, mouse): 6,000 ppm; 4-hour exposure INHALATION: Monkeys, rabbits, guinea pigs, and rats were exposed 7 hours/day, 5 days/week for up to 6 months at concentrations of 100-2,500 ppm Rabbits, monkeys and rats showed no effects from exposure up to 400 ppm. Guinea pigs had enlarged livers after exposure at 100 ppm. CARCINOGENICITY: Oral doses of 100 or 500 mg/kg to rats and mice resulted in increased number of liver cancers in mice but not rats Mice susceptible to lung cancer showed no increase in this disease. Applications to the skin of mice, with or without a promotor, did not cause cancer Rats were exposed at 300-600 ppm, 6 hours/day, 5 days/week for a year, and observed for a lifetime, but there was no evidence of tumours due to this exposure. MUTAGENICITY: Not mutagenic in Escherichia coli No mutagenic effects seen in rat liver after rats were exposed at 200 ppm for 10 weeks No chromosome changes were seen in exposed mouse bone marrow cells. REPRODUCTIVE EFFECTS: Exposure of pregnant rats and mice at 300 ppm on days 6-15 of gestation resulted in some fetotoxicity in mice and increased incidence of fetal resorption in rats. In another study, there were behavioural changes in the offspring of rats exposed at 900 ppm but not at 100 ppm.

*** OCCUPATIONAL EXPOSURE LIMITS ***
* THRESHOLD LIMIT VALUES (TLVS) / AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH) / 1987-88 *

TIME-WEIGHTED AVERAGE (TLV-TWA) : 50 ppm (339 mg/m3)

SHORT-TERM EXP. LIMIT (TLV-STEL) :

200 ppm (1368 mg/m3)

EXPOSURE LIMIT COMMENTS :

BIOLOGICAL EXPOSURE INDICES (BEIs): The ACGIH has adopted a BEI for this chemical BEIs provide an indication of worker exposure by measuring the chemical or its breakdown products in the body or by measuring biochemical changes resulting from exposure to the chemical Consult the BEI documentation for further information. NOTE: In many Canadian jurisdictions, exposure limits are similar to the ACGIH TLVs Since the manner in which exposure limits are established, interpreted, and implemented can vary, obtain detailed information from the appropriate government agency in each jurisdiction.

*** SAMPLING AND ANALYSIS ***

SAMPLING & ANALYSIS :

Use appropriate instrumentation and sampling strategy (location, timing, duration, frequency and number of samples) Interpretation of the sampling results is related to these variables and the analytical method. COLORIMETRIC-INDICATING (DETECTOR) TUBES: Commercially available. NIOSH METHOD(S): S335 - NIOSH Manual of Analytical Methods Vol 3; P&CAM 127 -

NIOSH Manual of Analytical Methods Vol 1. DIRECT READING INSTRUMENTS: Commercially available devices: GAS CHROMOTOGRAPH (continuous sampling; portable/fixed location) Passive personal dosimeters are commercially available.

*** EXPOSURE CONTROL ***

* Note: Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Use this general information to help develop specific control measures. Ensure that control systems are properly designed and maintained. Comply with occupational, environmental, fire, and other applicable regulations. *

* ENGINEERING CONTROLS *

ENGINEERING CONTROLS :
Engineering control methods to reduce hazardous exposures are preferred. Methods include mechanical ventilation (dilution and local exhaust), process or personnel enclosure, control of process conditions, and process modification (e.g substitution of a less hazardous material) Administrative controls and personal protective equipment may also be required. When there is large scale use of this material, local exhaust ventilation with process enclosure may be necessary. Supply sufficient replacement air to make up for air removed by exhaust systems.

* PERSONAL PROTECTIVE EQUIPMENT *

RESPIRATORY PROTECTION :
If engineering controls and work practices are not effective in controlling exposure to tetrachloroethylene, then wear suitable personal protective equipment Have appropriate equipment available for use in emergencies such as spills or fire. If respiratory protection is required, institute a complete, continuing respiratory protection program including selection, fit testing, training, maintenance, inspection, cleaning and evaluation Refer to the CSA standard Z94.4-M1982, "Selection, Care, and Use of Respirators" available from the Canadian Standards Association, Rexdale, Ontario, M9W 1R3.

RESPIRATORY PROTECTION GUIDELINES :
NIOSH RECOMMENDATIONS FOR TETRACHLOROETHYLENE CONCENTRATIONS IN AIR: AT ANY DETECTABLE CONCENTRATION: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA. ESCAPE: Gas mask with organic vapour canister; or escape-type SCBA. NOTE: NIOSH has classified this material as a potential occupational carcinogen, according to specific NIOSH criteria This classification is reflected in these recommendations for respiratory protection The requirements in Canadian jurisdictions may vary. ABBREVIATIONS: SAR = supplied-air respirator; SCBA = self-contained breathing apparatus.

EYE/FACE PROTECTION :
Chemical safety goggles A face shield may also be necessary.

SKIN PROTECTION :
Impervious gloves, coveralls, boots, and/or other resistant protective clothing Have a safety shower and eyewash fountain readily available in the immediate work area.

RESISTANCE OF MATERIALS FOR PROTECTIVE CLOTHING :
VERY GOOD: Viton GOOD: Chlorinated polyethylene, viton/neoprene FAIR/POOR: Butyl, neoprene, polyvinyl chloride (PVC), nitrile/PVC, natural rubber, nitrile, polyethylene, polyvinyl alcohol (PVA) NOTE: Resistance of specific materials can vary from product to product. Evaluate resistance under conditions of use and maintain clothing carefully.

PERSONAL PROTECTION COMMENTS :

Remove contaminated clothing promptly Keep contaminated clothing in closed containers Discard or launder before rewearing.Inform laundry personnel of contaminant's hazards.

*** STORAGE AND HANDLING ***

STORAGE CONDITIONS :

Store in a cool, dry, well-ventilated area, out of direct sunlight Store away from sources of heat such as furnaces Store away from incompatible materials such as oxidizing materials, strong bases and reactive metals. Store in suitable, labelled containers Keep containers tightly closed when not in use and when empty Protect from damage Limit quantity of material in storage Restrict access to storage area Post warning signs when appropriate Keep storage area separate from populated work areas. Inspect periodically for deficiencies such as damage or leaks.

HANDLING :

Avoid generating mist. Use smallest possible amounts in designated areas with adequate ventilation Label containers Keep containers closed when not in use. Empty containers may contain residues which are hazardous. Avoid welding arc, open flame and other high temperature sources. Vapours are heavier than air and may collect in low areas such as pits or other confined spaces Do not enter these areas unless the appropriate respiratory protective equipment is worn and an observer is present for assistance.

*** SPILL AND LEAK PROCEDURES ***

PRECAUTIONS :

Restrict access to area until completion of cleanup Ensure cleanup is conducted by trained personnel only Wear adequate personal protective equipment Ventilate area Extinguish or remove all ignition sources. Notify government occupational health and safety and environmental authorities.

CLEANUP :

Do not touch spilled material Stop or reduce leak if safe to do so. Prevent material entering sewers or confined spaces. Small spills: Soak up spill with absorbent material which does not react with spilled chemical Put material in suitable, covered, labelled containers Flush area with water. Large spills: To contain spills dike with earth, sand, or absorbent material which does not react with spilled material Remove liquid by pumps or vacuum equipment Place in suitable, covered, labelled containers Soak up remainder of spill with absorbent material Place in suitable, covered, labelled containers. Flush area with water. Contaminated absorbent may pose the same hazards as the spilled product.

*** DISPOSAL ***

DISPOSAL :

Review federal, provincial and local government requirements prior to disposal Store material for disposal as indicated in above Storage Conditions Disposal by secure landfill may be acceptable Returning reclaimed liquid to suppliers for purification by distillation may be an alternative.

*** FIRE AND EXPLOSION ***

FLASH POINT : Not combustible (does not burn)
LOWER EXPLOSIVE LIMIT (LEL) : Not applicable
UPPER EXPLOSIVE LIMIT (UEL) : Not applicable
AUTOIGNITION TEMPERATURE :

Not applicable

EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT :
Not sensitive Stable material.
EXPLOSION DATA - SENSITIVITY TO STATIC CHARGE :
Not applicable
FIRE EXTINGUISHING AGENTS :
Use extinguishing media appropriate to material which is burning.
FIRE FIGHTING PROCEDURES :
Use water spray to keep fire-exposed containers cool.
COMBUSTION (THERMAL DECOMPOSTITION) PRODUCTS :
Chlorine, phosgene, carbon monoxide, hydrogen chloride

* NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX *

HEALTH	: 2 - Hazardous to health
FIRE	: 0 - Will not burn
REACTIVITY	: 0 - Normally stable

*** CHEMICAL REACTIVITY ***

STABILITY :
Normally stable In the presence of light and air, tetrachloroethylene decomposes slowly.
INCOMPATIBILITY - MATERIALS TO AVOID :
BASES (sodium hydroxide, potassium hydroxide) - can form explosive mixtures of dichloroacetylene METALS (aluminum, barium, beryllium, lithium, magnesium, potassium) LIQUID OXYGEN DINITROGEN TETRAOXIDE
HAZARDOUS DECOMPOSITION PRODUCTS : Phosgene
HAZARDOUS POLYMERIZATION : Does not occur
CORROSIVITY TO METALS :
Unstabilized material, in the presence of water, is corrosive to aluminum, iron and zinc.

*** PHYSICAL PROPERTIES ***

MOLECULAR WEIGHT	: 165.82

CONVERSION FACTOR :
1 ppm = 6.78 mg/m3; 1 mg/m3 = 0.147 ppm @ 25 deg C
MELTING POINT :
-22.3 deg C (-8.2 deg F)

BOILING POINT	: 121 deg C (250 deg F)

RELATIVE DENSITY (SPECIFIC GRAVITY) :
1.623 at 20 deg C (water=1)
SOLUBILITY IN WATER :
Almost insoluble (0.015 g/100 mL at 25 deg C)
SOLUBILITY IN OTHER LIQUIDS :
Soluble in alcohol, ether, chloroform, benzene, hexane.

VAPOUR DENSITY	: 5.2 (air=1)
VAPOUR PRESSURE	: 15.8 mm Hg (2.11 kPa) at 22 deg C
SATURATION VAPOUR CONCENTRATION	: 2.1% (21,000 ppm) at 25 deg C and 760 mm Hg
EVAPORATION RATE	: 9 (ether=100)
pH VALUE	: Not applicable
CRITICAL TEMPERATURE	: Not available

COEFFICIENT OF OIL/WATER (PARTITION COEFFICIENT), P :
Log P(oct) = 2.60 at 20 deg C

*** WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) CLASSIFICATION ***

WHMIS CLASSIFICATION, PROPOSED :
Poisonous and infectious material - Immediate and serious effects - Toxic

Poisonous and infectious material - Other effects - Toxic
WHMIS HEALTH EFFECTS INDEX :
Eye irritation - toxic - other
TDG class 6.1 group III - toxic - immediate
WHMIS INGREDIENT DISCLOSURE LIST : Confirmed A; Meets criteria for disclosure at 1% or greater.

* DETAILED CLASSIFICATION ACCORDING TO CRITERIA *

WHMIS INFORMATION :
CLASS A - COMPRESSED GAS: Does not meet criteria
CLASS B - FLAMMABLE & COMBUSTIBLE MATERIAL: Does not meet criteria
CLASS C - OXIDIZING MATERIAL: Does not meet criteria
CLASS D - POISONOUS AND INFECTIOUS MATERIAL DIVISION 1 - IMMEDIATE AND SERIOUS TOXIC EFFECTS: Meets criteria for "Toxic material"; TDG class 6.1, packing group III.
Acute Lethality: Does not meet criteria
CLASS D - POISONOUS AND INFECTIOUS MATERIAL DIVISION 2 - OTHER TOXIC EFFECTS: Meets criteria for "Toxic material"; see detailed evaluation below.
CHRONIC TOXIC EFFECTS: Insufficient information
CARCINOGENICITY: Does not meet criteria; not in reference lists.
TERATOGENICITY AND EMBRYOTOXICITY: Insufficient information
REPRODUCTIVE TOXICITY: Insufficient information
MUTAGENICITY: Does not meet criteria
RESPIRATORY SENSITIZATION: Does not meet criteria; not reported as human respiratory sensitizer.
SKIN SENSITIZATION: Does not meet criteria
SKIN IRRITATION: Insufficient information
EYE IRRITATION: "Toxic"
CLASS E - CORROSIVE MATERIAL: Does not meet criteria
CLASS F - DANGEROUSLY REACTIVE MATERIAL: Does not meet criteria

*** TRANSPORTATION OF DANGEROUS GOODS (TDG) SHIPPING INFO ***
* (Source: Transport Canada, Transportation of Dangerous Goods Regulations) *

TDG INFORMATION : SHIPPING NAME AND DESCRIPTION:
Tetrachloroethylene or perchloroethylene
PRODUCT IDENTIFICATION NUMBER (PIN): 1897
CLASSIFICATION: 6.1 - Poisonous substance
SPECIAL PROVISIONS: ---
IMO CLASSIFICATION: 6.1
ICAO CLASSIFICATION: 6.1
PACKING GROUP: III

*** SELECTED BIBLIOGRAPHY ***

BIBLIOGRAPHY :
(1) Criteria for a recommended standard...occupational exposure to tetrachloroethylene NIOSH, 1976
(2) Clayton, G.D.; Clayton, F.E., eds Patty's industrial hygiene and toxicology 3rd revised ed Vol 2B : toxicology John Wiley and Sons Inc., 1981. p 3560
(3) Documentation of the threshold limit values 4th ed ACGIH, 1980. p 325
(4) Ludwig, H.R., et al Worker exposure to perchloroethylene in the commercial dry cleaning industry Am Ind Hyg Assoc J Vol 44, no 8 (1983) p 600-605
(5) Hake, C.L., et al Human exposure to tetrachloroethylene : inhalation

CARCINOGENICITY :
No evidence of carcinogenicity
TERATOGENICITY AND EMBRYOTOXICITY :
No information available
MUTAGENICITY :
Test results negative
POTENTIAL FOR ACCUMULATION :
Does not accumulate

*** FIRST AID ***

INHALATION :
Remove source of contamination or move victim to fresh air If breathing has stopped, properly trained personnel should begin artificial respiration or cardiopulmonary resuscitation (CPR) immediately Obtain medical attention immediately.
EYE CONTACT :
Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes, by the clock, holding the eyelid(s) open Obtain medical attention immediately.
SKIN CONTACT :
As quickly as possible, flush contaminated area with lukewarm, gently running water for at least 10 minutes, by the clock If available, non-abrasive soap or mild detergent may be used If irritation persists, repeat flushing Obtain medical advice immediately Completely decontaminate clothing, shoes and leather goods before re-use or discard.
INGESTION :
Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing Rinse mouth thoroughly with water DO NOT INDUCE VOMITING Have victim drink 8 to 10 ozs (240 to 300 ml) of water to dilute material in stomach If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration Repeat administration of water. Obtain medical attention immediately.
FIRST AID COMMENTS :
Provide general supportive measures (comfort, warmth, rest) Consult a physician and/or the nearest Poison Control Centre for all exposures except minor instances of inhalation or skin contact.

*** ANIMAL TOXICITY DATA ***

ANIMAL TOXICITY DATA :
Kidney damage in rats exposed to 190-330 ppm for 40 to 65 days Dogs exposed to 84 to 330 ppm for 6 hours per day, 5 days per week for 13 weeks showed no sign of kidney damage LCLo (rat, inhalation) 1,400 ppm/8 hours LCLo (cat, inhalation) 1,700 ppm/2.5 hours

*** OCCUPATIONAL EXPOSURE LIMITS ***
* THRESHOLD LIMIT VALUES (TLVS) / AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH) / 1987-88 *

TIME-WEIGHTED AVERAGE (TLV-TWA) : 100 ppm (525 mg/m3)
EXPOSURE LIMIT COMMENTS :
NOTE: Since the manner in which exposure limits are established, interpreted and implemented can vary among the jurisdictions, detailed information should be sought from the appropriate government agency in each jurisdiction

*** EXPOSURE CONTROL ***
* Note: Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite

APPENDIX C

SAFETY AND EMERGENCY EQUIPMENT

Multiple-use Spill Kit absorbs up to 61 gallons of liquid waste!

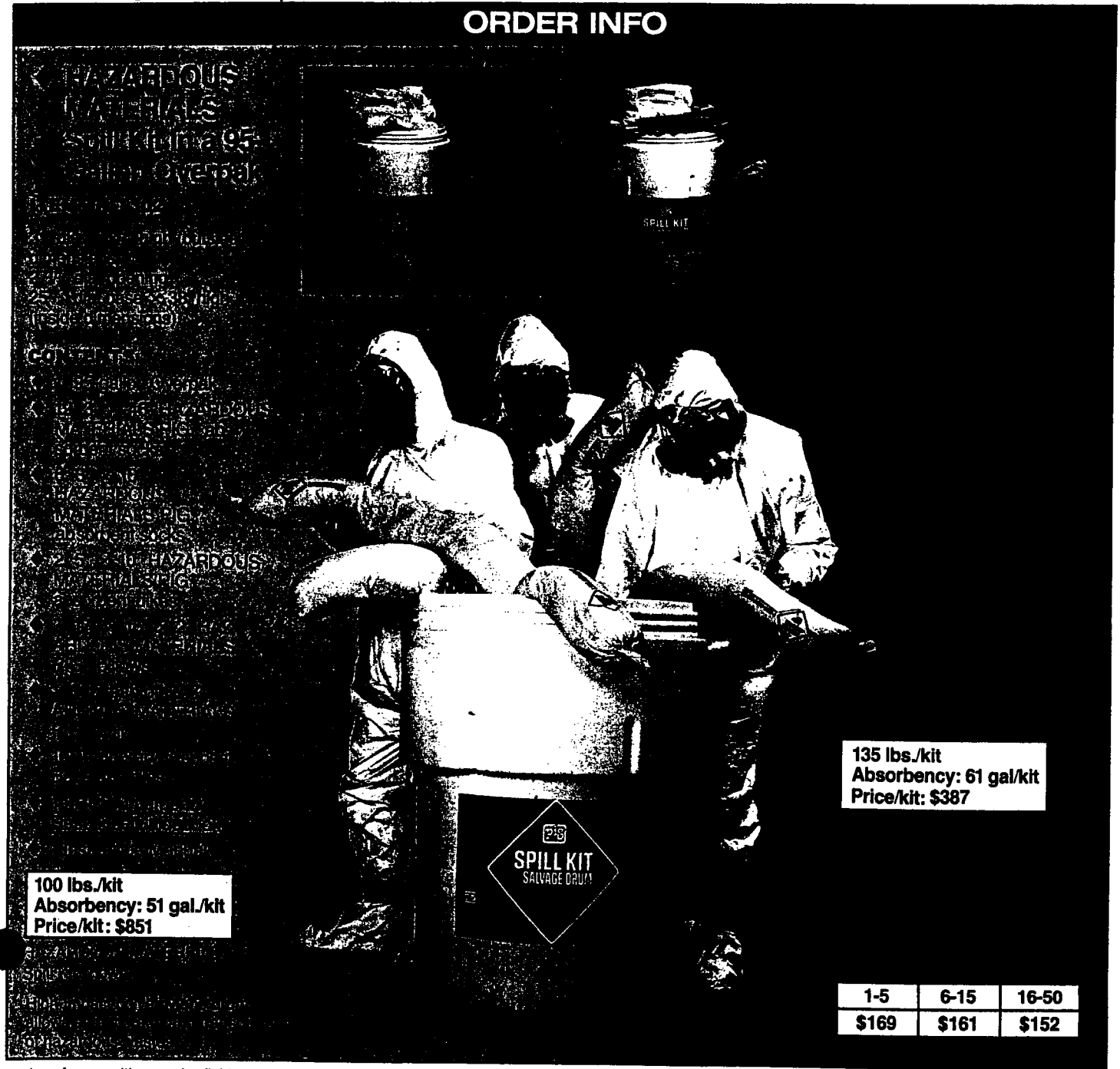
Searching for the proper absorbents once a chemical spill takes place can cause a serious delay in response.

That's why NEW PIG's Spill Kit in a 95-gallon Overpak carries the tools you need to handle almost any spill. THIS ONE

Its lightweight, high-visibility container is easy to recognize and move to the site of the spill. And once open, its layered compartments allow easy access to a range of powerful absorbents. (Absorbents available for either aggressive or non-aggressive fluids.)

Best of all, this Spill Kit's 95-gallon Overpak gives you a safe, convenient way to store and dispose of hazardous chemicals. When used as an Overpak it can even *fully contain* a leaking 55-gallon drum!

ORDER INFO



100 lbs./kit
Absorbency: 51 gal./kit
Price/kit: $851

135 lbs./kit
Absorbency: 61 gal/kit
Price/kit: $387

1-5	6-15	16-50
$169	$161	$152

♦ = for use with corrosive fluids.

● = for use with non-corrosive fluids.

APPENDIX D

DOCUMENTATION OF COORDINATION AGREEMENTS

CONTINGENCY PLAN ACKNOWLEDGEMENT

We have received a copy of the Keystone Contingency Plan.

Advanced Medical Transport of Central Illinois — Name of Organization

Sue Tolliver, Assistant Director — Printed Name

12/13/93 — Date

Sue Tolliver, Asst Director — Signature

Description of anticipated response or participation: See attached letter

Advanced
Medical Transport
of Central Illinois

8202 North University
Post Office Box 9050
Peoria, Illinois 61612-9050

Communications: (309) 693-6120
Business Office: (309) 693-6123

December 13, 1993

Dale Bennington, Manager
Energy and Environmental Engineering
7000 S.W. Adams St.
Peoria, IL 61641-0002

Dear Mr. Bennington:

I have received and reviewed the Contingency Plan for Hazardous Waste Storage at the Keystone Steel and Wire Company.

The Keystone facility is in Advanced Medical Transport's primary response area therefore, any notification of an emergency incident will be responded to immediately. In the event of a large scale HAZMAT incident we will respond all available resources and if needed activate agreements for mutual aid response.

We are looking forward to visiting your facility in the near future to further coordinate our response efforts.

Sincerely,

Sue Tolliver
Assistant Director

CONTINGENCY PLAN ACKNOWLEDGEMENT

We have received a copy of the Keystone Contingency Plan.

SAINT FRANCIS MEDICAL CENTER
Name of Organization

EARL R WILLIAMS, HSP
Printed Name

DECEMBER 03, 1993
Date

Earl R Williams
Signature

Description of anticipated response or participation:

TRAUMA CENTER

CONTINGENCY PLAN ACKNOWLEDGEMENT

We have received a copy of the Keystone Contingency Plan.

Illinois State Police	Trooper Jesse R. Bean
Name of Organization	Printed Name
December 7, 1993	Trooper Jesse R. Bean/pp
Date	Signature

Description of anticipated response or participation: The Illinois State Police will function in two roles. First in closing roads, isolating areas, and evacuation. Second, a Hazardous Materials Officer will assist the fire department with the proper handling of the incident. In transportation incidents, including loading and unloading, a State Haz Mat Officer should be called to fill out a safety inspection along with DOT 5800.1, required by all incidents.

CONTINGENCY PLAN ACKNOWLEDGEMENT

We have received a copy of the Keystone Contingency Plan.

IEMA	DEAN SCHLEE
Name of Organization	Printed Name
12-13-93	Dean Schlee
Date	Signature

Description of anticipated response or participation: WE WOULD PROVIDE THE GUIDANCE AS NEEDED. THIS AGENCY DOES NOT REVIEW PLANS TO VERIFY REQUIREMENTS.

CONTINGENCY PLAN ACKNOWLEDGEMENT

We have received a copy of the Keystone Contingency Plan.

PDC Response, Inc.
Name of Organization

James M. Pietraccatella, Jr.
Printed Name

12/13/93
Date

James M. Pietraccatella, Jr.
Signature

Description of anticipated response or participation: PDC Response agrees to minimally provide consultation to Keystone representatives who may require advice as to how to quickly and effectively remediate a spill or release. If necessary and assuming PDC had the personnel available, we agree to provide the necessary manpower, supplies and equipment to implement clean up activities, in the event Keystone personnel are unable to do so, as expediently as the situation dictates and the resources are available. We as that Keystone make provisions to seek alternative assistance in the event of our unavailability

CONTINGENCY PLAN ACKNOWLEDGEMENT

We have received a copy of the Keystone Contingency Plan.

City of Peoria ESDA

Name of Organization

E. Kay Harmon

Printed Name

12/14/93

Date

E Kay Harmon, CEM

Signature

Description of anticipated response or participation:

The City of Peoria ESDA has received a copy of the "Contingency Plan for Hazardous Waste Storage at Keystone". We recognize that in a large scale emergency or disaster, existing mutual aid agreements could be utilized to assist Keystone in a disaster response.

CONTINGENCY PLAN ACKNOWLEDGEMENT

We have received a copy of the Keystone Contingency Plan.

BARTONVILLE POLICE DEPT	WALTER N HELMSTROM JR.
Name of Organization	Printed Name
12/15/93	Walter N. Helmstrom Jr.
Date	Signature

Description of anticipated response or participation: BARTONVILLE POLICE DEPARTMENT AND BARTONVILLE ESDA OFFICERS WILL RESPOND WITH ALL AVAILABLE PERSONNEL AT THE TIME OF OCCURENCE AND SUPPLEMENT MANPOWER AS NEEDED.

NOTE: SEE COMMENTS OF FIRE CHIEF HELMS ON HIS ACKNOWLEDGEMENT.

CONTINGENCY PLAN ACKNOWLEDGEMENT

We have received a copy of the Keystone Contingency Plan.

Peoria County ESDA	Peoria County ESDA
Name of Organization	Printed Name
12-10-93	[signature]
Date	Signature

Description of anticipated response or participation: Peoria County ESDA will assist Keystone when services are needed